

WARZYN RESPONSES TO
MDNR AND U.S. EPA COMMENTS
TO DRAFT RI REPORT AND
BASELINE RISK ASSESSMENT
NORTH BRONSON INDUSTRIAL AREA
RI/FS PROJECT
BRONSON, MICHIGAN
JULY 23, 1993

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| (1) | No response necessary. |
| (2) | No response necessary. |
| (3) | The method used to determine which background data values were identified as outliers has been provided within Section 2.2.2 of the Baseline Risk Assessment (Baseline RA), as requested. |
| (4) | A discussion of the potential for worker exposure has been added to Section 3.1.2.4 of the Exposure Assessment, as requested. In addition, an explanation was provided to explain why health risks to worker populations were not qualified within the Baseline RA. |
| (5) | No response required. |
| (6) | The Table of Toxicity values was updated, as requested, and the risk calculations have been updated as appropriate. |
| (7) | Appendix B within the Draft Baseline RA had a consistently incorrect units for the water data presented. The values presented were correct, and therefore, the ultimate risk calculations which these values were used for were not affected. The units within Appendix B have been revised appropriately. |

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- (8) No response necessary.
- (9) Section 5.4.2 has been added to the Baseline RA to address Warzyn's "confidence" in the results.
- (10) 1. This comment has been addressed in Section 2.0 on page 2-1.
- (11) 2. This comment has been addressed in Section 2.0 on page 2-2.
- (12) 3. This comment has been addressed in Section 2.0 on page 2-2.
- (13) 4. This comment has been addressed in Section 2.0 on page 2-1, 2-3, and 2-4.
- (14) 5. This comment has been addressed in Section 2.3 on pages 2-3 through 2-13.
- (15) 6. This comment has been addressed in Section 2.3 on pages 2-3 and 2-4.
- (16) 7. We were not able to address this comment due to lack of available information on the former (b) (6).
- (17) 8. This comment has been addressed in Section 2.3 on pages 2-4, 2-7, and 2-8.
- (18) 9. These comments have been addressed in Section 2.3 on pages 2-3, 2-4, and 2-7.
- (19) 10. These comments have been addressed in Section 2.3 on page 2-12.
- (20) 11. These comments have been addressed in Section 2.3. Note, the disposition of the oil leak at DCC is not known at this time.
- (21) 12. This comment has been addressed in Section 2.4, pages 2-14 and 2-15 and Section 5.4.4, page 5-10.

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| (22) | 13. | These comments have been addressed in Section 2.3 on page 2-15. |
| (23) | 14. | This comment has been addressed in Section 3.2 on page 3-2. |
| (24) | 15. | As stated in the text, 49 ft is the correct maximum depth. |
| (25) | 16. | These comments have been addressed in Section 3.5 on pages 3-5 through 3-8. |
| (26) | 17. | These comments are addressed in Section 3.5 on page 3-7. Vertical profiling results (total VOC area counts) are found in Appendix C on boring logs MW19 through MW29. |
| (27) | 18. | This comment was intended for discussion purposes only and therefore not addressed. |
| (28) | 19. | These comments are addressed in Appendix C which contain boring logs and well construction details. Vertical profiling results (total VOC area counts) have been added to the boring logs for Phase II wells MW19 through MW29. |
| (29) | 20. | This comment has been addressed. The abandoned industrial sewer line was added to Figure 2.2 and the text was modified to reflect this change. |
| (30) | 21. | These comments have been addressed in Section 3.6 on page 3-13. |
| (31) | 22. | This comment has been addressed in Section 3.5 on page 3-18. |
| (32) | 23. | These comments were addressed in Section 3.11 on pages 3-19 and 3-20. The baildown procedure was explained in greater detail. The baildown data is considered valid. |
| (33) | 24. | These comments were addressed in Section 4.2 on pages 4-1 and 4-2. There were no wetlands on the site proper. |
| (34) | 25. | This comment was addressed in Section 4.3 on page 4-2. |

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| (35) | 26. | The comments regarding the uncertainty of the presence of a continuous aquitard at the site were addressed throughout the text. In addition, boring logs and well construction details (if referenced in the text) for work performed at the site by other companies before and during the RI are found in Appendix C. Also, information was added to Phase II monitoring well logs. |
| (36) | 27. | This comment was addressed in Section 4.3 on page 4-3. |
| (37) | 28. | These comments have been addressed in Section 4.3 on pages 4-2 and 4-3. |
| (38) | 29. | This comment has been addressed in Section 4.3 on page 4-4. |
| (39) | 30. | This comment has been addressed in Section 4.4 on page 4-5. |
| (40) | 31. | This comment has been addressed in Section 4.4 on page 4-6 and Section 6 on page 6-11 (4.21×10^{-2} cm/sec is the correct value). |
| (41) | 32. | This comment has been addressed throughout the text. Hydraulic conductivity values are reported in ft/sec with cm/sec values immediately following in parenthesis. |
| (42) | 33. | The assumption of the presence of the aquitard is based on five laboratory permeability tests, residential well logs, other site boring logs, and the Hydrogeologic Atlas of Michigan. It is valid to assume the presence of an aquitard, but uncertainty was written into the text. The term "combined unit" is defined in Section 4.4 on page 4-7 and refers to the silty sand and clay unit. |
| (43) | 34. | This comment has been addressed in Section 4.4 on page 4-7. |
| (44) | 35. | This comment has been addressed in Section 4.5 on page 4-7. |
| (45) | 36. | This comment has been addressed in Section 5.3 on page 5-4 and other appropriate sections throughout the text. |

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- (46) 37. This comment has been addressed in Section 5.3 on page 5-6 and throughout the text.
- (47) 38. This comment has been addressed in Section 5.4 on page 5-7 and throughout the text.
- (48) 39. To the best of our knowledge MDPH has not reviewed the private well data collected during the RI and results have not been sent to private well owners.
- (49) 40. Six private well samples were collected during Round 1 sampling and this has been clarified on Table 5-1 and in Section 5.4.4 on page 5-10 of the text.
- (50) 41. These comments have been addressed in Section 5.5.1 on page 5-21.
- (51) 42. This comment has been addressed in Section 5.5.1 on all appropriate pages.
- (52) 43. This comment has been addressed in Section 5.5.2 on page 5-24.
- (53) 44. This comment has been addressed in Section 5.5.2 on page 5-24 and all appropriate sections of the text. Analytical results from borings SB11 and SB12 were inadvertently left out but are now included in the discussion.
- (54) 45. This comment has been addressed in Section 5.5.2 on page 5-27.
- (55) 46. The total chlorinated ethene concentration in well MW20 is correct as found on Figure 5-3. When the chlorinated ethene concentrations found in the discussion on page 5-28 are added, the total chlorinated ethene concentration is 70,200 ug/L.
- (56) 47. This comment has been addressed in Section 5.5.2 on page 5-30.
- (57) 48. This comment has been addressed in Section 5.5.3 on page 5-32 (soil samples were not collected at borings MW19 and MW20).

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| (58) | 49. | These comments have been addressed in Section 5.5.3 on page 5-32. |
| (59) | 50. | It is possible TCE and 1,2-DCE detected in the subsurface soils found below the water table are due to an upgradient source (i.e., Scott Fetzer subarea). |
| (60) | 51. | This comment has been addressed in Section 5.5.3 on pages 5-35 and 5-36. |
| (61) | 52. | This comment has been addressed in Section 5.6 on page 5-39. |
| (62) | 53. | This comment has been addressed in Section 5.6.1 on page 5-46. |
| (63) | 54. | This comment has been addressed in Section 5.6.1 on pages 5-54 and 5-55. |
| (64) | 55. | This comment has been addressed in Section 5.6.1 on page 5-46. |
| (65) | 56. | This comment has been addressed in Section 3.6 on pages 3-11, 3-14 , and 3-16, and Section 5.6.2 on page 5-57. |
| (66) | 57. | This comment has been addressed in Section 5.7 on page 5-71. |
| (67) | 58. | This comment has been addressed in Section 5.7 on page 5-73 and their current NPDES permit is found in Appendix K. |
| (68) | 59. | This comment has been addressed in Section 5.7 on page 5-77. |
| (69) | 60. | This comment has been addressed in Section 5.8 on page 5-83. |
| (70) | 61. | This comment has been addressed in Section 5.8 on page 5-84. |
| (71) | 62. | The word downgradient is correct as stated in the text. |

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| (72) | 63. | This comment has been addressed in Section 6.3.2 on page 6-13. |
| (73) | 64. | This comment has been addressed in Section 6.3.2 on page 6-14. |
| (74) | 65. | This comment has been addressed in Section 6.3.2 on page 6-15. |
| (75) | 66. | This comment has been addressed in Section 6.3.2 on page 6-16. |
| (76) | 67. | This comment has been addressed in Section 6.4 on pages 6-19 and 6-20. |
| (77) | 68. | This comment has been addressed in Section 7.0 on page 7-1. |
| (78) | 69. | This comment has been addressed in Section 7.0 on page 7-1. |
| (79) | 70. | This comment has been addressed in Section 7.0 on page 7-2. |
| (80) | 1. | Table 3-1 will be left as is. |
| | 2. | Table 5-1 has been corrected. Seven private wells were to be collected but the (b) (6) was not sampled because it had been abandoned in 1974. |
| | 3. | Wells MW15, MW16, MW17, and MW18 were not sampled because DCC was conducting a separate investigation under the supervision of the Jackson District of MDNR. |

No analytical results are included for the soil samples listed in the comment because there were no samples collected for analysis. This information was corrected on Table 5-1.

Borings SB4, SB5, SB8, and SB9 are not included in Table 5-1 because analytical samples were not collected. Borings SB4 and SB5 were used to determine the depth of sludge in the eastern lagoons, by observation only. Borings

SB8 and SB9 were drilled to determine the depth to the top of the aquitard, only.

- (81)
1. These comments were addressed on Figure 2-2.
 2. Figures 3-6, 3-7, and 3-8 depicting the water table contours were based on water table wells only, as explained in the footnote of the figures.
 3. This comment has been addressed on Figure 4-1.
 4. The contour lines drawn on Figure 5-2 were removed.
 5. Figure 5-3 was corrected. The range of concentrations was used on the contour lines to present a wide range of contaminant concentrations across the site. It would be difficult to draw contaminant concentration contours by depth.
 6. The total chlorinated ethene concentration (70,200 ug/L) at well MW20 is correct. The contour lines were drawn on Figures 5-3 and 5-4 based on known concentrations in wells and contour lines were interpolated based on dilution and dispersion affects downgradient of the wells.
- (82)
1. Appendix C
 - a. Boring logs were re-ordered.
 - b. Additional information was added to boring logs MW19-MW29. Please note these wells were earth drilled with no split-spoon samples collected. Soils were classified from drill cuttings. Vertical profiling was performed at each boring and total VOC area counts are included on the boring logs.
 - c. Duplicate logs were removed.
 - d. Boring logs for wells MW1-MW6 and MW15-MW18 are included in Appendix C.
 - e. Additional well logs are included in Appendix C.

- f. The soil staining does not correspond to the depth of the industrial sewer line.
 - g. The staining was likely indicative of sludge remnants from the former lagoons.
- (83) 2. Appendix C2
 - a. Appendix C was re-ordered.
 - b. All well construction details should have read "all depths measured from ground surface". The well construction details have been revised.
 - c. This elevation information is not available.
- (84) 3. Appendix C3

Well logs for wells drilled outside the scope of the RI (and if referenced in the text) are included in Appendix C.
- (85) 4. Appendix D
 - a. This has been corrected.
 - b. Grain size analysis was performed on the sample listed, only.
- (86) 5. Appendix E
 - a. The sample IDs were darkened to be made clearer when copied.
 - b. This comment has been addressed in Appendix E. The permeability test results for PZ6 and PZ7 will be included in Appendix E. Furthermore, MW11 is not mentioned in the text when discussing the aquifer because MW11 did not encounter the confining layer and was installed in the terminal moraine which overlies the upper sand layer (aquifer) north of CD #30.
- (87) 6. Appendix H
 - a. This has been corrected.

- b. The quality of the hydraulic conductivity results are not questionable. Please see the revised hydraulic conductivity method summary, Section 3.11 on pages 3-18 and 3-19.
- (88) 7. Appendix I3
- Table 5-1 has been corrected.
8. This was an copying and/or a binding error in Appendix I4 and is corrected in the final report.
9. Appendix I6
- a. This has been corrected.
 - b. TCL organics were never received for LB6, as stated in the report.
 - c. Lagoon water TCL, VOC results were missing from your report due to a copying and/or binding error, this is corrected in the final report.
- (89) 1. No response required.
- (90) 2. These comments have been incorporated into the report, as it is uncertain if the lower aquifer is contaminated.
- (91) 3. These comments have been incorporated into the report.
- (92) 4. The current status of the remediation of the oil spill at DCC Plant #2 is unknown.
- (93) 5. Chlorinated ethene concentrations were detected at varying depths in the aquifer. Chlorinated ethenes have migrated downward in the upper aquifer, due to downward vertical gradients.
- (94) 6. Mapping contaminants in CD#30 was not deemed necessary.
- (95) 7. Additional monitoring wells were not installed north of CD#30 (except MW11) because of access problems to

privately owned land and because this area was not defined as part of the site. MW11 was intended to be a background well.

- (96) 8. No response required.
- (97) 9. SJD industries was not included in the industrial survey. Thus, there is no information available regarding chemicals used on-site.
- (98) 10. Hooker Oil was in business at the time of the industrial survey, but was not included in the industrial survey (1988). It was believed to be a bulk oil delivery company. It is not known whether additional chemicals were stored on-site.
- (99) 11. The stained soil excavated at Bronson Precision Products was reportedly disposed of in an unnamed (Type II) landfill. According to the WW Engineering and Science Report, the stained soil was caused by a combination of a leaking underground storage tank, an above ground storage tank, a septic tank, and drums stored on-site. The following types of contaminants were detected: benzene, ethylbenzene, toluene, trans 1,2-dichloroethene, trichloroethene, and various metals. According to the WW Engineering and Science, Inc. report, confirmatory samples were collected as part of the soil remediation effort. Reportedly an area of 250 ft by 250 ft by 5 ft of soil was excavated and disposed of in an unnamed Type II landfill.
- (100) 12. CD#30 sediment dredged by Branch County was reportedly left stockpiled on the northern bank of CD#30 and not removed to a landfill.
- (101) 13. TCE was not detected in a well at DCC Plant 2 at 2,700 ug/L, but 1,1,1-trichloroethane was detected at 3,600 ug/L in well MW8 on the DCC property. The main point of the comment asserting DCC Plant #2 as a possible source of chlorinated contaminants has been incorporated into the text of the report.
- (102) 14. The comments by the Department of Interior (DOI) regarding further investigation of CD#30 have been

reviewed. The additional work investigation of CD#30 is beyond Warzyn's work scope for this project.

- (103) Within the Baseline RA, all exposure pathways which were quantitatively assessed had a chronic exposure duration. Therefore, subchronic exposure risks were not calculated as part of this assessment. For this reason this uncertainty did not seem applicable to this assessment, and therefore, was not added to the uncertainties sections.
- (104) The document requested has been included as Appendix J3 of the revised RI report. The data was assumed to be distributed log-normally for purposes of the risk calculations.

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- (105) The text has been revised to include other potential sources of contaminants at the site. References to Scott Fetzer and LA Darling were meant to indicate these as subareas and not specific companies. The text has been revised where appropriate to reflect these changes. A disclaimer has also been added.
- (106) References to chlorinated ethene compounds solubilities have been changed to present a comparison of solubilities between chlorinated ethene compounds and several other organic compounds and metals. These references are a means of understanding contaminant transport due partially to solubility of the different compounds or metals.
- (107) There is little choice but to relate these sampling events to each other. Budget and time constraints are a factor determining the number of samples collected and frequency of collection, thus some assumptions need to be made when analyzing the data.
- (108) Cis-1,2-dichloroethene and trans-1,2-dichloroethene are not differentiated by CLP protocol. CLP laboratories report total 1,2-dichloroethene as required under the Statement of Work (SOW) they are working under.

- (109) Additional companies have been added to the list of potential sources.
- (110) MDNR requested inclusion of Act 307 Type B criteria, background data, ambient water quality criteria, and maximum contaminant levels, as appropriate. RCRA levels have not been added, because the tables are already crowded with comparative information. Table 5-13 contains RCRA reference levels for lagoon sludge.
- The spelling of remedial was corrected.
- (111) The text has been revised (Page 3-6) to explain the logs for the Phase II monitoring wells. Although split spoon samples were not collected, soil descriptions and soil symbols are included on the boring logs from field observation of drill cuttings and known geology from other site borings.
- (112) This comment has been addressed in Section 3.5 on page 3-6.
- (113) This comment has been addressed in Section 3.5.2 on page 3-9.
- (114) This comment has been addressed in Section 3.6 on pages 3-11 and 3-12.
- (115) This comment was taken into consideration when discussing results.
- (116) The sentence is correct as stated in the text and did not need revision.
- (117) This comment (concerning homogeneous upper aquifer) has been addressed in Section 4.4 on page 4-5.

The comment concerning groundwater velocities has been addressed in Section 4.4 on page 4-6. Groundwater velocity ranges were not included because reasonable assumptions were used when determining groundwater velocities at the site and would not enhance the discussion.

- (118) This comment has been addressed in Section 4.4 on page 4-7, and where appropriate throughout the text.
- (119) Warzyn does not intend to re-sample because of unusable or "lost" data. It was determined that sufficient data exists for characterization of site contaminants. This is stated in Section 5.2 on page 5-4.
- (120) This comment has been addressed in Section 5.4 on page 5-7. The text was also revised at appropriate places to indicate background concentrations are used for comparison purposes only and clean-up levels will likely be determined by other state and/or federal regulations.
- (121) This comment has been addressed in Section 5.4.4 on pages 5-10, 5-11 and 5-12. Also, see Table 5-6. In addition, Warzyn has not contacted the private well residents concerning analytical results.
- (122) This comment has been addressed in Section 5.5 on page 5-14.
- (123) Well MW25 is still included in the discussion of the LA Darling subarea, but the text has been revised Section 5.5.1 on page 5-20, to include further explanation of well MW25's inclusion with the LA Darling subarea.
- (124) This comment has been addressed in Section 5.5.1 on page 5-21.
- (125) This comment has been addressed in Section 5.5.1 on pages 5-21 and 5-22 (Concentrations at the source area would likely be at a higher concentration than what was detected).
- (126) This comment has been addressed in Section 5.5.2 on page 5-23.
- (127) This comment has been addressed in Section 5.5.2 on page 5-27.
- (128) This comment has been addressed in Section 5.5.2 on pages 5-24 and 5-27 (soil sample MW10D is included in the discussion of the Scott Fetzer subarea).

- (129) This comment has been addressed where appropriate throughout the text to clarify which "exceedances" are referred to in the text.
- (130) This comment has been addressed in Section 5.5.2 on pages 5-29 and 5-30.
- (131) This comment has been addressed in Section 5.5.2 on pages 5-29 and 5-30.
- (132) This comment has been addressed in Section 5.5.3 on page 5-36.
- (133) Groundwater contour maps indicate groundwater flows from the subareas, as stated in the report. Groundwater flow is a major (but not the only) factor controlling contaminant transport. Contaminant transport is discussed in Section 6.0
- (134) These comments have been addressed in Section 5.6 on page 5-39.
- (135) This comment has been addressed in Section 5.6 on page 5-43.
- (136) This comment has been addressed in Section 5.6 on page 5-51.
- (137) This comment has been addressed in Section 5.6 on page 5-52.
- (138) This comment has been addressed in Section 5.6 on page 5-53 (the reader is referred to Table 5-1 for a summary of samples collected and parameters analyzed by sampling event).
- (139) These comments have been addressed in Section 5.6 on pages 5-54 and 5-55.
- (140) This comment has been addressed in Section 5.6.2 on page 5-57 (the reader is referred to Table 5-15 for AWQC values).

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- (141) This comment has been addressed in Section 5.6.2 on page 5-57.
- (142) This comment has been addressed in Section 5.6.2 on page 5-59.
- (143) This comment has been addressed in Section 5.6.2 on page 5-64.
- (144) This comment has been addressed in Section 5.6.2 on page 5-64.
- (145) This comment has been addressed in Section 5.6.2 on page 5-66.
- (146) This comment has been addressed in Section 5.6.2 on page 5-66.
- (147) This comment has been addressed in Section 5.6.2 on pages 5-67 and 5-70.
- (148) This comment has been addressed in Section 5.6.2 on pages 5-68 and 5-71.
- (149) This comment has been addressed in Section 5.6.2 on pages 5-70 and 5-71.
- (150) This comment has been addressed in Section 5.7 on page 5-73.
- (151) This comment has been addressed in Section 5.7 on page 5-73.
- (152) These comments have been addressed in Section 5.7 on pages 5-76 and 5-77.
- (153) This comment has been addressed in Section 5.7 on page 5-82.
- (154) This comment has been addressed in Section 5.7 on page 5-83.

- (155) This comment has been addressed in Section 5.7 on page 5-84.
- (156) This comment has been addressed in Section 6.1.1 on page 6-3.
- (157) We believe microbially mediated degradation of chlorinated ethenes is taking place at the site, thus the degradation discussion in Section 6.1.5 on page 6-6 is applicable to the site.
- (158) Section 6.1.6 overall mobility, while not site specific forms a foundation for the site specific discussion of contaminant migration at the site which follows.
- (159) This comment has been addressed in Section 6.2.1 on page 6-8.
- (160) This comment has been addressed in Section 6.2.1 on page 6-9.
- (161) This comment has been addressed in Section 6.2.3 on page 6-11.
- (162) This comment has been addressed in Section 6.2.3 on page 6-12.
- (163) This comment has been addressed in Section 6.3.1 on page 6-13.
- (164) This comment has been addressed in Section 6.3.2 on page 6-13.
- (165) This comment has been addressed in Section 6.3.2 on page 6-14.
- (166) This comment has been addressed in Section 6.3.2 on page 6-15.
- (167) This comment has been addressed in Section 6.3.2 on page 6-15.

- (168) These comments have been addressed in Section 6.3.2 on pages 6-15 and 6-16.
- (169) The comment about "appropriate nutrients" was addressed in Section 6.3.2 on page 6-17. We believe biodegradation is occurring which is confirmed by the presence of degradation products detected across the site.
- (170) This comment has been addressed in Section 6.3.2 on page 6-17.
- (171) This comment has been addressed in Section 6.3.3 on page 6-18.
- (172) This comment has been addressed in Section 6.3.3 on page 6-18.
- (173) The symbol in question is correct as found on Table 4-2.
- (174) This comment was not addressed. It would not make a great deal of difference to the data.
- (175) Horizontal gradients are variable across the site as stated in the text.
- (176) This comment has been addressed on Figure 3.6.
- (177) These comments have been addressed on Figure 3.7.
- (178) This comment has been addressed on Table 4-3.
- (179) These comments have been addressed on Figure 4-1.
- (180) This comment has been addressed on Figure 4-4.
- (181) The depiction of the aquitard on Figure 4-5 is believed to be accurate as originally plotted.
- (182) This comment has been addressed on Figure 5-2. Metal contamination has been depicted more accurately on Figure 5-2.

- (183) This comment has been addressed in the Phase II boring logs found in Appendix C. Vertical profiling results (total area count for VOCs) are included on the boring logs for the Phase II monitoring wells. Although split spoon samples were not collected for these borings, soil descriptions, soil symbols and the end of boring material are included on each boring log from field observation of drill cuttings and soil descriptions from borings in the area.
- (184) This comment has been addressed in the Monitoring Well Construction Information logs found in Appendix C. Monitoring well construction logs have been revised, as necessary, so that elevation and well material lengths agree. Well material lengths are given to the nearest 0.1 ft. The elevation of the bottom of the well screen is given on each of the well logs and the elevation of the top of the well screen is easily calculated from available information present on each well log. "Stick-up" values have been revised, as necessary, to agree with elevation data given on each well log. "Stick-up" values are determined to the nearest 0.1 ft in the field during well construction and may vary slightly from survey data. The length of backfill around the well screen can be determined from available information presented on each well log (i.e. the top and bottom elevation and depth of the sand pack [backfill] is given on each well log). Clean water was added in a few instances to hydrate the lower seals where the seal was placed above the water table. It is presumed that "heaving" sands prevented the installation of the lower seal above the sand pack at these well locations. Boring logs and well construction details (logs) have been printed back to back as requested by MDNR in Appendix C.
- (185) This comment has been addressed in Section 2.4, pages 2-14 and 2-15 and in Section 5.4.4, page 5-10.
- (186) This comment has been addressed on Figure 2-2 (and all related figures) and in Section 5.5, page 5-14.
- (187) The comment about limited data regarding the lower aquifer has been incorporated throughout the text where appropriate. Analytical data from MDPH for the fall 1992 sampling event of the three City of Bronson municipal wells

has been included in Appendix I. The fact the City of Bronson wells are not contaminated has been included in the text in Section 2.4, page 2-14 and 2-15.

- (188) This comment has been addressed in Section 6, page 6-15.
- (189) This comment has been addressed in the appropriate figures.
- (190) This comment has been addressed, as the Bronson Plating and Bronson WWTP NPDES permits have been included in Appendix K.
- (191) This comment has been addressed on Figure 3-4.
- (192) Refer to response to comment 4.
- (193) This comment has been addressed as the MDNR's Waste Management - Division's "Cleanup Verification Guidance Document" has been included in Appendix J3 of the RI report.
- (194) This comment has been addressed in Section 5.4, page 5-7.
- (195) An Executive Summary has been added to the Baseline RA to better summarize the key results of the assessment.
- (196) The various comments regarding CD#30 have been addressed throughout the text where appropriate.
- (197) This comment has been addressed in Section 2, page 2-1.
- (198) This comment has been addressed in Section 5.4.5, page 5-13.
- (199) These comments have been addressed throughout the text where applicable.
- (200) These comments have been addressed in Section 5.6, page 5-39.
- (201) This comment has been addressed in Section 3.5.1, page 3-8.

- (202) This comment was addressed by inserting a sheet (at the beginning of Appendix C) which summarizes how to determine the screen depth and elevation.
- (203) This comment was addressed by adding soil descriptions to boring logs MW19 through MW29.
- (204) This comment has been addressed in Section 3.5.1, page 3-6.
- (205) This comment was addressed in the text in Section 3.5.1, page 3-7.

U.S. EPA COMMENTS ON REVISED PORTIONS OF THE RI REPORT

- (206) 1. This comment was addressed in the Executive Summary, Page ii.
- (207) 2. This comment was addressed in the Executive Summary, Page ii.
- (208) 3. This comment was addressed in the Executive Summary, Page ii.
- (209) 4. This comment was addressed in the Executive Summary, Page iii.
- (210) 5. This comment was addressed in the Executive Summary, Page iv.
- (211) 6. This comment was addressed in the Executive Summary, Page iv.
- (212) 7. This comment was addressed in the Executive Summary, Pages iv.
- (213) 8. This comment was addressed in Section 2.0, Page 2-1.
- (214) 9. This comment was addressed in Section 2.3, Page 2-3.
- (215) 10. This comment was addressed in Section 2.3, Page 2-3.

Warzyn # EPA #

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| (216) | 11. | This comment was addressed in Section 2.3, Pages 2-3 and 2-4. |
| (217) | 12. | This comment was addressed in Section 2.3, Page 2-4. |
| (218) | 13. | This comment was addressed in Section 2.3, Page 2-4. |
| (219) | 14. | This comment was addressed in Section 2.3, Page 2-10. |
| (220) | 15. | This comment was addressed in Section 2.4, Page 2-14. |
| (221) | 16. | This comment was addressed in Section 2.4, page 2-14. |
| (222) | 17. | Recommendations have been removed from the report. |
| (223) | 18. | This comment was addressed in Section 3.5, page 3-5. Nineteen wells were installed during Phase I of the RI. |
| (224) | 19. | This comment was addressed in Section 3.5, page 3-6. |
| (225) | 20. | Wells MW19, MW23, and MW29 were not set at the zones of highest VOC contamination as stated in the text. A summary has been added at the beginning of Appendix C which explains how to determine well screen depths and elevations. |
| (226) | 21. | This comment was addressed in Section 3.5, page 3-6 and Section 3.5.2, page 3-9. |
| (227) | 22. | This comment was addressed in Section 3.5.2, page 3-9. |
| (228) | 23. | This comment was addressed in Section 4.3, page 4-2. |
| (229) | 24. | This comment was addressed in Section 4.3, page 4-3. |
| (230) | 25. | This comment was addressed in Section 5.4, page 5-7. |
| (231) | 26. | This comment was addressed in Section 5.4.4, page 5-12. |
| (232) | 27. | This comment was addressed in Section 5.5, page 5-14. |
| (233) | 28. | Soil boring MW10D listed on pages 5-24 and 5-27 is correct as stated. |

Warzyn # EPA #

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| (234) | 29. | This comment has been addressed in Section 5.5.4, page 5-38. |
| (235) | 30. | The Scott Fetzer buildings are referred to as Scott Fetzer throughout the report whereas Douglas Components Corporation Plant #2 is referred to in the report as DCC Plant 2. The comment regarding the reference to the historical Section 2.0 has been included in Section 5.6, page 5-39. |
| (236) | 31. | This comment was addressed in Section 5.6.1, page 5-50. |
| (237) | 32. | The missing page (5-56) is likely a copying/binding error. |
| (238) | 33. | This comment was addressed in Section 5.6.2, page 5-67. |
| (239) | 34. | This comment was addressed in Section 5.6.2, page 5-68. |
| (240) | 35. | This comment was addressed throughout the report. |
| (241) | 36. | This comment was addressed in Section 5.6.3, page 5-71. |
| (242) | 37. | This comment was addressed in Section 5.6.3, page 5-71. |
| (243) | 38. | This comment has been addressed in Section 5.7, page 5-73. |
| (244) | 39. | This comment has been addressed in Section 5.7, page 5-83. |
| (245) | 40. | This comment has been addressed in Section 5.8, page 5-83. |
| (246) | 41. | This comment has been addressed in Section 5.8, page 5-83. |
| (247) | 42. | This comment has been addressed in Section 5.8, page 5-84. |
| (248) | 43. | This comment has been addressed in Section 6.2.3, page 6-11. |
| (249) | 44. | This comment has been addressed in Section 6.2.3, page 6-12. |
| (250) | 45. | This comment has been addressed in Section 6.2.3, page 6-14. |

Warzyn # EPA #

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|-------|-----|---|
| (251) | 46. | This comment has been addressed in Section 7.0, page 7-1. The acronym CDF was defined in Section 2.0. CDF does not appear on the final figures but is referenced in the text by location and by SFCC (vacant) on the figures. |
| (252) | 47. | This comment has been addressed in Section 7.0, pages 7-1 and 7-2. |
| (253) | 48. | This comment has been addressed in Section 7.0, page 7-2. |
| (254) | 49. | This comment has been addressed in Section 7.0, page 7-2. |
| (255) | 50. | We did not have the level of detail available to address the comments regarding information requested for figures. Where more detailed information was available it was included it in the text. |
| (256) | 51. | We will correctly spell Mary Tierney's name in the final report. |

SGW/MWK/vlr/JMK
[mad-607-257]
7005100/159

NATURAL RESOURCES
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DEPARTMENT OF NATURAL RESOURCES

Stevens T. Mason Building, P.O. Box 30029, Lansing, MI 48909

ROLAND HARMES, Director

DEC 15 1992

December 11, 1992

REFERENCE FOR
WARZYN RESPONSE

Mr. Joel Kahaner
Project Manager
Warzyn Engineering
41551 Eleven Mile Road
P.O. Box 8012
Novi, Michigan 48376

Subject: North Bronson Industrial Area
Remedial Investigation/Feasibility Study

Dear Mr. Kahaner:

Enclosed are preliminary technical comments of the MDNR and the U.S. EPA regarding the draft Remedial Investigation Report which was prepared by Warzyn under contract to the State of Michigan. These comments are being sent now to allow for Warzyn to prepare for a meeting in early January 1993 with the MDNR and the EPA. Additional comments subsequent to the meeting are anticipated and will be forwarded at that time. I also expect to be able to formalize some decisions regarding some of the "big picture" issues, or at least provide a clearer objective as to where the project should be headed.

Briefly, I have been advised that the EPA is concerned with the broad scope of our investigation and would like to discuss narrowing the focus of the feasibility study to some degree. According to the EPA, there are no predetermined limits being imposed upon the MDNR nor Warzyn. They feel the direction of the project needs to be discussed to see what can be agreed upon by all of the involved parties. Obviously, due to the statutory authority they maintain over all CERCLA sites, in addition to being the funding source, it would be beneficial to us to reach agreement. I am advising you of this because your continued input and cooperation is necessary in order for us to complete the project with a successful Record of Decision.

(A)

Mr. Joel Kahaner

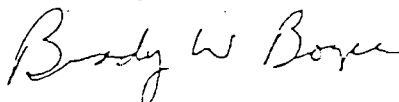
-2-

December 11, 1992

On a final note, I was told by EPA staff that they thought the draft RI Report was one of the better draft reports that they had read. Therefore, the tenor of the upcoming meeting shouldn't be viewed as critical of the work that Warzyn has done so far.

If you have any questions, please let me know.

Sincerely,



Brady Boyce
Superfund Section
Environmental Response Division
517-373-4824

Enclosures

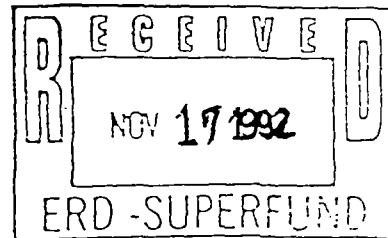
cc: Mr. Chuck Graff, ERD
Mr. George Carpenter, ERD
Ms. Mary Tierney, ERD

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

November 16, 1992

B



TO: Brady Boyce, Site Management Unit 1
Superfund Section
Environmental Response Division

FROM: Jeff Crum, Toxicologist
Special Services Section
Environmental Response Division

JS

SUBJECT: Review of the Draft Baseline Risk Assessment for North Bronson Industrial Area

Identification of Chemicals of Potential Concern

Page 2-3 to 2-5 and Appendix J: The method for determining which background data values were identified as outliers was not explained. Please have the consultant's provide this information.

Exposure Assessment

There was no mention of the potential for exposure of industrial workers or other workers to contaminated media. Do their duties or job functions result in contact with contaminated media at the site? Please have the consultant's explain why this potential receptor was not addressed.

I recommend that the methodology (i.e. air modeling; Appendix D) used for deriving risk estimates for inhalation of volatile organics be reviewed by appropriate personnel within the Air Quality Division since my background is not versed in this area.

Table 10: The following reference doses (RfDs) were incorrect:

Chlorobenzene:	Change 5.7E-3 to 2E-2 (IRIS, 1992)
1,2,4-Trichlorobenzene:	Change ND to 4E-2 (HEAST, 1992)
Naphthalene:	Change 4E-3 to 4E-2 (HEAST, 1992)
2-Methylnaphthalene:	Change ND to 1.6E-3 (MDNR, 1992)
Copper:	Change ND to 4E-2 (MDNR, 1992)
Sodium:	Change ND to 43 (MDNR, 1992)
Zinc:	Change 2E-1 to 3E-1 (IRIS, 1992)

The oral slope factor of 1.3 should be added for alpha- and gamma-chlordane.

However, it is recognized that the effects of these changes on the overall risk will be negligible.

B

7 Throughout the risk assessment there was an enormous amount of concentration data that obviously had wrong units of measure (e.g. groundwater and surface water data with ug/kg instead of ug/l). Even within a table, units were not consistently used such as expressing values in both ug/kg and mg/kg. This made the review extremely difficult to follow and yielded considerable doubt as to whether the risk calculations had been performed correctly. Please have the consultant's clarify this issue.

8 Overall, this risk assessment was well organized and thoroughly evaluated and identified the major factors (chemicals and exposure pathways) driving the site risks. However, it is important to remember from a programmatic perspective, that a number of chemicals at the site exceed Act 307 Type B criteria for groundwater and soils. Although this is not within the scope of the risk assessment, these chemicals must also be addressed in a programmatic context for remedial implementation that is consistent with the Administrative rules for Act 307.

9 Lastly, there was no clear discussion from the risk assessors (Warzyn) regarding their level of "confidence" in the assessment. This would be most effectively presented as a summary of the elements that were most influential to the results of the assessment. This would have expounded upon their list of factors contributing to uncertainties in the risk assessment. This is significant information that should facilitate the decision-making process.

This concludes my review. If you have any questions or need clarification of the above comments you may contact me at 335-3092.

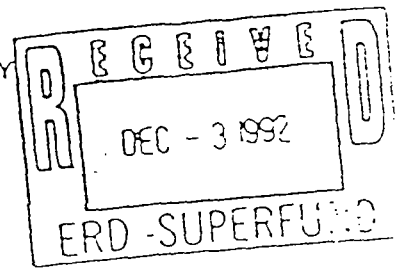
cc: Jim Oakwood, ERD
William Bradford, ERD
Ron Kooistra, ERD
Chris Flaga, ERD

REFERENCES

- HEAST (1992) Health Effects Assessment Summary Tables. Annual FY 1992. Office of Research and Development; Office of Emergency and Remedial Response, U.S. Environmental Protection Agency.
- IRIS (1992) Integrated Risk Information System, Version 1.0 (database). Office of Health and Environmental Assessment; Office of Research and Development, U.S. Environmental Protection Agency.
- MDNR (1992) Michigan Department of Natural Resources. MERA Operational Memorandum #8, Revision 1; Act 307 Type B Cleanup Criteria, Environmental Response Division.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590



November 30, 1992

REPLY TO THE ATTENTION OF

HSM-9J

William Bradford, Chief
Superfund Section
Environmental Response Division
Michigan Department of Natural Resources
P. O. Box 30028
Lansing, Michigan 48909

Dear Bill:

Enclosed you will find our comments on the Draft Remedial Investigation (RI) Report for the North Bronson Superfund site, which was transmitted to the Remedial Project Manager on September 4, 1992. I also want to confirm a meeting on Wednesday, December 16, 1992, to discuss the RI Report and our comments on it.

If you have any questions about the enclosed comments, please contact either the RPM, Mary Tierney, at 312/886-4785 or me at 312/886-6138.

Sincerely,

Rose M. Freeman
Michigan Project Officer

cc: Mary Tierney
Brady Boyce ✓

Enclosure

COMMENTS ON REMEDIAL INVESTIGATION REPORT
NORTH BRONSON INDUSTRIAL AREA SITE
BRONSON, MICHIGAN

A summary of the comments and questions on the Remedial Investigation (RI) report and the Baseline Risk Assessment report for the North Bronson Industrial Area (NBIA) site in Bronson, Michigan follows. While some of the comments simply request straightforward changes, request further information, or make observations about the information provided in the RI report, other comments may require further discussion.

Comments Regarding Text

- 10 1. Page 2-1, paragraph 1. In the second sentence, replace "hazard ranking score (HRS)" with "Hazard Ranking System (HRS) score". In the third sentence, insert the word "score" after "HRS".
- 11 2. Page 2-1, section 2.1. This would be an appropriate place to document the changes over time in the site boundaries and the different names under which the site has been listed.
- 12 3. Page 2-1, paragraph 3. Please expand on how the boundaries for the site were determined.
- 13 4. Page 2-1, paragraph 3. More information about the number and locations of the lagoons besides the two that are visible on the Bronson Plating Company (BPC) property must be given. How many lagoons were said to once exist at the plant? How many lagoons appear in aerial photographs of the site?
- 14 5. Page 2-2, section 2.3. History prior to 1939 is needed. According to file information, plating activities began at the site possibly as early as 1910 (LA Darling, Douglas Components, and possibly Bronson Reel).
- 15 6. Page 2-2, paragraph 3, and page 2-3, paragraph 2. Include the name(s) of the operators of the western lagoons (on page 2-2) and of the eastern lagoons (on page 2-3).
- 16 7. Page 2-3, paragraph 3. Insert depth of (b) (6) and whether the well is screened in the upper or lower aquifer (if known).
- 17 8. Page 2-3, paragraph 5. Note regarding "relabeling" of monitoring wells should be clarified or a reference should be made to a table which lists the former and present labeling system. The former and current labels are listed on the next page for your convenience.

(C)

Former Label

Current Label

BP-1

MW15

BP-2

MW16

BP-3

MW17

BP-4

MW18

18

9. Page 2-3, paragraph 5. Did disposal activities at the western lagoons continue until 1981 also? Which company was using the western lagoons for waste disposal between 1965 and 1981?

19

10. Page 2-3, paragraph 6. Supply more information regarding the remediation done on CD#30. Who conducted and funded the dredging? Where were the sediments disposed of? Was any confirmatory sampling done after the dredging was complete, and, if so, what were the results? Also, insert the length of CD#30 that was dredged (1600 feet).

20

11. Page 2-4, paragraph 1. See comment 8 above regarding relabeling. Also, updated information about the current status of the remediation of the oil leak at Douglas Components Corporation (DCC) Plant #2 should be included.

21

12. Page 2-5, paragraph 1. Which of the private wells listed on page 2-4 are currently in use?

22

13. Page 2-5, paragraph 3. In the note in the parentheses regarding Appendix I, insert "1990" after "MDPH". Were results from other years looked at?

23

14. Page 3-2, paragraph 7, and page 3-3, paragraph 2.. Include references to Table 5-1 for a summary of sampling activities.

24

15. Page 3-5, paragraph 4. Is the maximum depth referred to in the last sentence supposed to be 51 feet? This question applies to page 3-8, paragraph 2, also.

25

16. Page 3-5, paragraph 5. A note is needed regarding the lack of logging and monitoring data for MW19 through MW29. Also, it appears that in Appendix I2, at least some of the data for metal and cyanide analyses for soil samples from the drilling of the monitoring wells in 1989 are present. Are these the data being referred to when it says "the metal and cyanide samples were not analyzed"? Please clarify.

26

17. Page 3-6, paragraph 3 and 4. For which VOC contaminants of concern were the groundwater profiling samples analyzed? Are these results available? Which well samples were "non-detect"?

CS4

CS4

get from M.D.N.R.

(C)

27 18. Page 3-8, paragraph 4, and Appendix C1. The top annular seal is listed as bentonite only. Two concerns regarding bentonite only seals are 1) frost heaving problems, especially in shallow wells, may result and 2) the use of bentonite in the unsaturated zone may lead to dehydration, cracking, and formation of direct pathways from the surface to groundwater. (This comment was included for discussion purposes only).

✓

28 19. Page 3-8, paragraph 4. Where were wells MW19 through MW29 screened? Were highest levels of VOC contamination found at the bottom of the wells, i.e. at 40 to 60 feet in some cases? At which wells was no contamination found? Are results available?

Vertical Profiling
get from MW29

29 20. Page 3-12, paragraph 5. The location of the abandoned industrial sewer line does not appear on any of the figures, including Figure 3-2, which is referred to in this paragraph.

CS4

30 21. Page 3-12, paragraph 6. Please clarify what information, geophysical or otherwise, led to the determination of locations for soil borings SB13, SB14, and SB15. Specifically, were these locations chosen based on surface staining, which would lead one to believe that the contaminants detected in the samples may be limited to the column of soil below the stained areas, or were the locations chosen for some other reason, indicating that it is possible that contamination may be more extensive?

for

31 22. Page 3-16, paragraph 4. Switch the order of the references to residential wells and existing monitoring wells in the third sentence to make it clear that none of the residential wells were resampled.

Clarify

32 23. Pages 3-17 and 3-18. Clarification is needed regarding use of the air pressure method for determining hydraulic conductivity. On these two pages, it is stated that water levels were depressed by air at least 10 feet in the wells, held until stable, and then released, and that care was taken to avoid introducing air into the aquifer. Please explain how at least 10 feet of water was depressed in 6 of the 13 wells, which contained water columns ranging between 8.54 and 11.46 feet, without introducing air into the aquifer. (Also, because the transducer is itself approximately a foot in length, this further limits the amount of depression that could be induced). Note that the Bouwer and Rice steady state assumptions are invalidated when the water level drops below the riser casing and into the screen. This in turn invalidates the hydraulic conductivity calculations.

33 24. Page 4-1, section 4.2. In the discussion of CD#30, state whether or not any wetland areas or floodplains exist near the drain. Provide descriptions of these features if they are present.

34 25. Page 4-2, paragraph 2. Is the information included in the

CS4

(C)
bullets based only on the Hydrogeologic Atlas of Michigan or is it supported by site specific data?

15 26. Page 4-2, section 4.3. The term "aquitard" in the Site Geology section must be used with caution. Because this report will be placed in the information repository for the site and may be read by members of the public, it must be made clear that the term "aquitard" refers to relative permeability only and does not necessarily imply impermeability. A short definition of the term at the start of the section should be inserted.

In addition, care must be taken to make sure that readers are not misled about the certainty of the conclusions regarding the presence of a continuous aquitard unit at the site. This comment also applies to the remainder of the text where a continuous aquitard is referred to. The level of uncertainty of this conclusion must be adjusted throughout the report.

The presence of an aquitard underlying the site is based on 34 borings, only four of which appear to have been subjected to permeability testing. Was the presence of an aquitard surface in the remaining 30 borings based on visual observation alone?

Monitoring well logs are not available for thirteen of the thirty wells in which the aquitard was stated to be present. What type of documentation exists for the contents of the boring logs for MW19 through MW29 and for existing wells MW3 and MW5, which were installed by McNamee, Porter, and Seeley, Inc. in 1978? Were the boring logs for the wells installed on the DCC Plant #2 checked for possible use? Are these well logs available?

27. Page 4-3, paragraph 1. Here again, we should not assume that the aquitard is continuous throughout the site.

36 Also, regarding the percentage of clay determined in the grain size results, on what did you base the range of the percentage of clay for aquitard samples (listed on page 4-3 as 14.0% - 20.5%)? A sampling of the percentages listed in Appendix D ("Grain Size Analysis") are shown below.

<u>Boring</u>	<u>Depth (feet)</u>	<u>Percentage of clay</u>
MW8	20	14.0
MW8	22	6.5
MW10	40	2.3
MW10	50	20.5
MW13	27	17.0
PZ6	48	0.5
PZ6	69	66.7
PZ7	38	2.4
PZ7	42	16.3

(C)
How was a range of 14.0% to 20.5% determined?

37 28. Page 4-3, paragraph 2. Without a map locating the residential wells for which well logs are available, it is difficult to assess whether the logs could support the assertion that the clay layer at FZ6 "appears to be extensive". In order to assess the validity of the statement that the residential well logs in the immediate vicinity of the site "indicate that this clay layer may be as thick as 21 ft and that the combination of the silty sand layer and the clay layer may be as thick as 50 ft", a map showing the locations of the wells is needed.

Also, in the third bullet on the previous page, page 4-2, on page 6-19, paragraph 1, and on page 7-2, paragraph 6, is the lower limit of 50 feet for the thickness of the aquitard based on information from residential well logs or is there other information on which it is based?

38 29. Page 4-4, paragraph 2. The lack of certainty of the assertion made in the first sentence of the Site Hydrogeology section needs to be taken into consideration.

39 30. Page 4-4, paragraph 3. Include the approximate depth below the surface at which groundwater is encountered.

40 31. Page 4-5, paragraph 2. The geometric mean for hydraulic conductivity for the upper aquifer is given as 4.50×10^{-2} cm/sec on pages 4-5 and 6-11 and as 4.21×10^{-2} cm/sec in Table 4-1. Please determine which value is the correct one and make consistent throughout.

41 32. Pages 4-5 and 4-6. The units in which hydraulic conductivity values are listed on these two pages and elsewhere in the report are very inconsistent. The figures are given alternately in units of feet/second and centimeters/second on the two pages. In addition, the hydraulic conductivity values are given in units of centimeters/second in Appendix E and feet/minute in Appendix H. Please make the units consistent on pages 4-5 and 4-6.

Since the calculated groundwater velocities for the northern and southern parts of the site are given in units of feet/year on page 4-5, it is recommended that on pages 4-5 and 4-6, the values for hydraulic conductivity be given in units of feet/second with equivalent values in units of centimeters/second immediately following in parentheses.

42 33. Page 4-6, paragraph 4. Is it valid to conclude an aquitard is present based on permeability analyses of five soil boring samples collected on an approximately 150-acre parcel of land? What is meant by the "combined unit" that is referred to--the area contained within the five sampling points?

(c)
43 34. Page 4-7, paragraph 1. What information regarding the lower aquifer below the site is available from literature searches?

44 35. Page 4-7, paragraph 3. Please delete the statement about the economic effects of the site on the surrounding area included in the section on Demography and Land Use. The inclusion of this statement might raise concerns about environmental equity.

45 36. Page 5-4, paragraph 3. It should be made clear that the "study areas" do not specify definitive and known areas of contamination, but instead were defined in order to simplify investigative tasks.

46 37. Page 5-6, paragraph 2. As in the previous comment, clarification is needed regarding the relationship of the study areas to the results from the samples collected from those areas. I would suggest inserting the following sentence after the first sentence in the paragraph: "The location of a sample in a specific study area does not imply that the associated area is necessarily the sole source of any contaminants detected in the samples, nor does it imply that the party associated with the facility after which the subarea is named is the only potentially responsible party".

47 38. Page 5-6, paragraph 5. After the first sentence in this paragraph, insert the following.

Although Michigan Act 307 is an Applicable or Relevant and Appropriate Requirement (ARAR) which will be taken into account in selecting the remedy for this site, the Criteria Type that will be considered to be an ARAR has yet to be determined. References to Type B Criteria that occur throughout this report are for comparison purposes only. However, it should not be assumed that Type B Criteria will be determined to be the appropriate cleanup level at this site.

The use of AWQC values as a type of cleanup criteria will also be considered to determine whether they should be included as ARARs. The State and Federal Agencies will also make the final determination about groundwater cleanup standards at groundwater-surface water interface (GSI) areas and their relation to the protection of surface water bodies.

Please modify any other areas of the report where it seems to be indicated that the above mentioned cleanup criteria have already been finalized as cleanup levels for the site.

48 39. Page 5-9, paragraph 7. Has the Michigan Department of Public Health (MDPH) reviewed the private well data? Have data results been sent to the residents?

(C)
49 40. Page 5-9, paragraph 8. Were 5 or 6 private well samples collected during Round 1?

50 41. Page 5-19, paragraph 6. Considering that groundwater flow direction shifts from directly north to northwest to west as you move away from CD#30, the statement that wells MW24 and MW25 are downgradient of LA Darling cannot be made with absolute certainty. Also, by saying the wells are "downgradient of LA Darling", instead of "downgradient of the LA Darling Subarea", seems to imply that we know for certain that the sole source of any contaminants in MW24 or MW25 is the LA Darling facility itself.

51 42. Page 5-20, paragraph 5. The contaminants in MW24 and MW25 cannot be exclusively attributed to the LA Darling facility. Please modify this sentence.

52 43. Page 5-23, paragraph 3. Please make a note that subsurface soil samples from boring MW10 were also collected near the Scott Fetzer area but these samples were only analyzed for TAL Inorganics.

53 44. Page 5-24, paragraph 5. Were results from samples SB11 and SB12 inadvertently left out of the bullets?

54 45. Page 5-25, paragraph 6. Movement of an upgradient groundwater plume of contaminants may account for the VOCs in the subsurface soils in the Scott Fetzer subarea, but an alternative source may be the industrial sewer line.

55 46. Page 5-27, paragraph 5. On Figure 5-3, a chlorinated ethene concentration of 70,200 ug/L is listed as being detected in MW20. Is this value incorrect or has it been left out of the discussion on page 5-27?

56 47. Page 5-28, paragraph 6. Based on the facts that MW5 and MW27 are located over 1000 feet and 1600 feet, respectively, from the Scott Fetzer property, and that one or more other sources of contamination may exist in the vicinity of these wells, the contaminants in the two wells cannot be conclusively attributed to a source at the Scott Fetzer property.

57 48. Page 5-30, paragraph 4. Would the subsurface soil samples collected at borings MW19, MW20, and SB10 also apply to this subarea?

58 49. Page 5-31, paragraph 2. Data from samples collected at boring SB10 could be used in the second bullet. At boring SB10, 1,2-DCE was detected at concentrations of 9 ug/kg at 15 feet and 14 ug/kg at 30 feet. TCE was detected in samples from SB10 also, but the levels detected were below those detected in SB12.

(C)
79 50. Page 5-32, paragraph 4. Is it necessarily true that the TCE and 1,2-DCE detected in the samples discussed previously are "likely attributable to an upgradient source"?

60 51. Page 5-33, paragraph 4. Two additional wells, MW19 and MW20, are located adjacent to the abandoned industrial sewer line.

61 52. Page 5-37, paragraph 1. More must be said regarding the remaining eastern lagoons.

62 53. Page 5-43, paragraph 4. Why are borings SB4 and SB5, collected from the two visible eastern lagoons, not discussed here, and where are the results for these two samples?

63 54. Page 5-48, paragraph 1. Is it necessarily true that the TCE and PCE detected in the eastern lagoons are from an upgradient source and not from the lagoons themselves? (This question also applies to paragraph 5 on page 5-51 and paragraph 1 on page 5-68).

64 55. Page 5-48, paragraph 5. As on page 5-43, why are borings SB4 and SB5 excluded from this discussion?

65 56. Page 5-54, paragraph 2. In section 3.6 Waste Characterization, which is where lagoon water sampling is discussed, it is not stated whether the samples were filtered or not. Either in section 3.6 or in paragraph 2 on page 5-54, state whether the samples that were analyzed for TAL Inorganics were filtered.

66 57. Page 5-68, paragraph 3. The Bronson Wastewater Treatment Effluent outfall and the Bronson Storm Sewer sample IDs are not correct. The labels should be OF3 and OF5, respectively, instead of OF2 and OF3.

67 58. Page 5-70, paragraph 1. Are the PAHs detected in OF1 allowed under the National Pollutant Discharge Elimination System (NPDES) for BPC? Also, a copy of the permit should be included as an appendix.

68 59. Page 5-74, paragraph 3. Delete the paragraph which begins "There is applicable...". Insert the following.

The following wells were located adjacent to or near CD#30 to monitor the discharge of groundwater to the drain. The Act 307 Type B Criteria concerning contaminated groundwater discharges to a surface water body may or may not be determined to be a cleanup standard.

69 60. Page 5-79, paragraph 6. A fourth possible source area of chlorinated ethenes is the abandoned industrial sewer line.

Also, in this same paragraph, the other industries which may have used TCE should also be listed.

70 61. Page 5-80, paragraph 2. What is the word "respectively", at the end of the first sentence, meant to convey?

71 62. Page 6-11, paragraph 5. The word "downgradient" in the second sentence should be replaced by "upgradient".

72 63. Page 6-13, paragraph 7. Insert the word "identified" between the left parenthesis and the word "source" in the first sentence.

73 64. Page 6-14, paragraph 4. The lack of certainty as to whether all sources of chlorinated ethenes have been identified must be acknowledged in this paragraph.

74 65. Page 6-15, paragraph 2. The information in this paragraph implies that the only case in which DNAPLs would sink in the aquifer and be adsorbed on the organic fraction of soils would be when compound was detected in the aquifer at a concentration which exceeded its solubility limit. This is not true. In some cases, DNAPLs may be present even when a compound is present at a concentration only 10% of its solubility limit.

The vertical profiling which was done (in order to determine the depth at which the screen was to be placed during well installation) may have been sufficient to assess whether NAPLs were present; however, further information regarding the profiling is needed.

75 66. Page 6-15, paragraph 3. In the sixth sentence, where the aquitard and its effect on the migration of contaminants is discussed, the uncertainty of the statement must be acknowledged.

76 67. Page 6-19, paragraph 1. The uncertainty about whether all source areas have been identified should be acknowledged and implications about conclusive allocations of responsibility for the contamination should be avoided. Also, the sentence beginning "There is an aquitard" should contain more uncertainty. (This latter comment also applies to the identical sentence on page 7-2, paragraph 6).

77 68. Page 7-1, paragraph 3. Include the fourth possible source area (abandoned industrial sewer line) and insert the idea that other source areas which have not yet been identified may exist.

78 69. Page 7-1, paragraph 3. If some of the industries are listed as potential users of TCE, the other industries in the NBIA site which may have used TCE must be included also.

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70. Page 7-2, paragraph 5. In the first sentence, after "in the upper aquifer to" insert "at least".

Comments Regarding Tables

1. Table 3-1. It might be less confusing if this table was separated into three tables instead of having all of the information in one.

2. Table 5-1. On page one, the number of private wells is listed as 7 in the parentheses instead of 6. Did the original plan include sampling seven wells? If so, why were only six wells sampled? Was the (b)(6) designation originally meant for a well that was to be sampled? Why was the (b)(6) not sampled?

On page three, why were wells MW15-MW18 not sampled in 1991? On page four, why were the monitoring well boring samples that were drilled in 1991 only analyzed for TAL Inorganics? Also, data for the following samples were not included in Appendix I in my copy of the draft report: MW1-15, MW2S-10, MW3S-15, MW4S-15, MW6D-5, MW6D-15, MW8S-22, MW9D-10, MW10D-10, MW10D-40, MW10D-50, MW11D-15, MW11S-19, MW12D-20, and MW12D-28.

On page five, borings SB4, SB5, SB8, and SB9 are not mentioned in this table and the data results are not included in Appendix I. Where are the data for these samples?

Comments Regarding Figures

1. Figure 2-2. Indicate original location of BPC, former location of Bronson Reel, and former names for the Scott Fetzer facility (H.A. Douglas Manufacturing, Douglas Components Corporation Plant #1). Indicate locations of Plastics and Tools Divisions of Bronson Specialties, Inc. Include designation of "Plant #2" on the Douglas Components Corporation facility on Albers Street. Indicate original property boundaries of LA Darling. Indicate route of abandoned industrial sewer line. Identify the following abandoned structures on the site:

"Vacant Wood Building" = Former lumber yard
"Vacant Wood Structure" and "Ruins" = Former grain mill
"Vacant Block Structure" = Robert Motors, Inc.

Indicate section of CD#30 that was dredged in 1985. Indicate former locations of remaining eastern lagoons.

Also, it would be helpful to show soil sample SS16 and well MW11S on a map that covers a larger area (such as the Site Location Map in Figure 2-1) so that their actual locations could be seen.

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2. Figures 3-6, 3-7, and 3-8. Do these figures document the water table contours based on the shallow wells only? Please indicate.

3. Figure 4-1. Contour lines should be dashed to indicate that the continuous presence of the aquitard across the site is not completely certain.

4. Figure 5-2. What assumptions were used in creating these contour lines?

5. Figure 5-3. The logarithmic 100-1000 ppb contour line in the north central site area is missing. Contour lines on the figure go from 10-100 ppb to 1000-10,000 ppb. Also, judging from the chlorinated ethene concentrations detected in MW5, MW7S, and MW27, the contour lines as shown appear to be incorrectly drawn. Please explain your use of double value contour lines. It may be best to develop separate plume maps for the levels of contaminants at different depths in the aquifer.

6. Figure 5-3. Please check the concentration of 70,200 ppb listed at well MW20. What assumptions were used to locate the contour lines on this figure and on Figure 5-4?

Comments Regarding Appendices

1. Appendix C1

- 82
- a. No ordering system was apparent. Please reorder.
 - b. The boring logs for MW19-MW29 are incomplete. Please explain why these logs contain no geologic or other remarks, no PID readings, and no mention of soil samples collected.
 - c. Duplicates of logs for MW5S/SB10, MW10S/SB4, and MW12D/SB2 were present.
 - d. Are well logs available for MW1-MW6, MW7-MW14 on DCC Plant #2 property, and MW15-MW18?
 - e. Include well logs for wells installed by McNamee, Porter, and Seeley, Inc. in 1978 and by Keck Consulting Services, Inc. in 1981.
 - f. Borings for wells MW2S, MW4S, and MW5D, which were located along the abandoned industrial sewer line, had orange-brown staining at 16.3 to 16.5 feet, 10.2 feet, and 15.0 feet, respectively. Did these depths correspond to the depths at which the lines were located? Would this be an indication of leakage?
 - g. In soil boring logs SB1, SB2, and SB6, located in the area of the eastern lagoons adjacent to the west side of the on-site building, dark staining is present in each at depth. The descriptions of the stained soil and their corresponding depths are listed below.

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<u>BORING</u>	<u>DEPTH(S)</u>	<u>DESCRIPTION</u>
SB1	10.0	Dark staining
SB2	7.0-8.0	Loose, black and yellow smearings, greasy, organic, sludge-like muck (FILL)
SB6	8.5	3" black, oily seam

In the soil boring log for sample SB3, which was located at the southeast edge of one of the eastern lagoons, the presence of a "black zone at 7.0 feet on surface of red brick" was indicated. These four incidents of soil staining may be remnants of sludge deposited in the former lagoons. However, results from samples collected from the borings did not seem to indicate that contamination was present. Hnu readings at levels above background were obtained while drilling borings SB1 and SB2.

2. Appendix C2

- No ordering system was apparent. Please reorder.
- Fourteen of the thirty-six well construction logs state "all depths measured from top of inner casing". Please clarify as to whether this is correct or whether the depths were measured from ground surface as stated on the remainder of the well construction logs.
- The log for MW28 is missing the data for bottom of backfill/top of lower seal elevations.

3. Appendix C3

Logs for wells drilled by Keck Consulting Services, Inc. (for BPC) and by Sterling Drilling Company (for DCC Plant #2) should either be in their own appendix or in Appendix C1.

4. Appendix D

- Logs for wells MW11S and MW12D were upside-down.
- Only results for SB1, SB2, SB3, MW1-MW13, PZ1, PZ6, and PZ7 were present. Are these the only samples which underwent grain size analysis?

5. Appendix E

- The sample IDs on the results sheets must be printed more clearly.
- Borings from MW6, MW7, MW8, MW10, MW12, MW13, SB6-SB9, PZ1, PZ2, PZ4, and PZ5-PZ7 are used as evidence that an aquitard exists at the site. In Appendix E, permeability test results are only available for MW6, MW11 (which was not one of the samples listed above), MW12, and PZ1. Did any of the other samples listed above undergo permeability tests? In the text, on page 4-6, it states that samples from borings MW6, MW12,

87
P21, P26, and P27 underwent laboratory permeability tests. Are results for samples P26 and P27 available?

88
6. Appendix H

- a. Data sheets for MW21 and MW26 were upside-down.
- b. The quality of the data used to determine hydraulic conductivity values for wells MW6S, MW8S, MW8D, MW12S, MW12D, MW13S, and MW13D seems questionable. Were these results used in the report?

7. Appendix I3

See the eighth sentence in the comment regarding Table 5-1.

8. Appendix I4

Results for TAL Inorganic analyses for residential wells were located in Appendix I5 in my copy of the report.

9. Appendix I6

- a. The data for appendices I5 and I6 were switched in my copy of the report.
- b. In the appendix which will contain lagoon berm soil results (presumably I5), TCL Semi-Volatiles and TCL Pesticides/PCBs results for LB06 were missing.
- b. In the appendix which will contain lagoon waters results (presumably I6), TCL Volatiles results are missing for LW01-LW05.

General Comments

- 89
- 1. Contamination from TCE and its derivatives can probably be attributed to RCRA listed waste F001 and the metal bearing wastes and sludges can probably be attributed to RCRA listed waste F006. Consequently, RCRA ARARs will apply for these constituents. RCRA ARARs will also be applicable for excavated wastes which test characteristic by the TCLP or for characteristic wastes which are generated by remedial activities.

- 90
- 2. There is a lack of data about the flow gradient and extent of contamination of the lower aquifer. The report indicates that based on information about the silt and clay layer separating the upper and lower aquifers, it is unlikely that the lower aquifer has been impacted. In addition, the report cites results of two rounds of samples from off-site residential wells which show no contamination. The depth of one well has not been verified, and neither well may be representative of the aquifer below the site. Except for this data, no information has been collected concerning the lower aquifer.

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3. Although Michigan Act 307 Type B Criteria are repeatedly referred to in the report, it should be made clear that Type B Criteria will not automatically be the cleanup levels at the site. This general comment also applies to AWQC values and to values pertaining to groundwater cleanup levels at GSI areas to meet surface water cleanup levels.
 4. What is the current status of the remediation of the oil spill at DCC Plant #2?
 5. In general, it was noted that the higher concentrations of TCE were at lower depths in the upper aquifer.
 6. A mapping of the distribution of "key" contaminants found in CD#30 may be helpful.
 7. Why were no monitoring wells installed across CD#30 (besides MW11, which is 1000 feet north of the drain)?
 8. An ecological assessment of the drain may have to be done.
 9. Did SJD Industries use any solvents in their manufacturing process?
 10. Is Hooker Oil still in business? What type of activities took place at their facility at the site? Were any chemicals stored on-site?
 11. Was the stained soil which was excavated from the Bronson Precision Products property in 1988 ever disposed of properly? What was the spill due to? What type of contaminants were present in the spill? Were any confirmatory samples collected? What volume of soil was excavated?
 12. Was the contaminated sediment which was stockpiled on the northern bank of CD#30 after dredging in 1985 removed to a certified disposal area?
 13. During the first phase of the RI, TCE was detected in one of the monitoring wells on the property of DCC Plant #2 at a concentration of 2700 ug/L. The Phase I Technical Memorandum pointed out that this concentration of TCE was an order of magnitude greater than the levels detected at any of the other wells on the site. The possibility that DCC Plant #2 is another source area for chlorinated ethenes must be taken into consideration.
 14. Comments from the Department of Interior (DOI) indicate a concern about PCBs at the site being cleaned up to levels that would be protective of wildlife in the area. As a general overall comment, the DOI advised against using Act

307 Type B Direct Contact Values (1000 ug/kg PCB) for determining sediment and soil Target Clean-up Levels. Although the highest concentrations of PCBs detected at the site were an order of magnitude lower than the 1000 ug/kg Direct Contact Value, and at this point PCBs do not appear to be a major contaminant of concern, the specific suggestions made by DOI are included below for discussion.

- * Fish from CD#30 should be sampled and analyzed for contaminants.
- * The community structure of benthic invertebrates in the drain should be documented.
- * As a surrogate for the above two suggestions, Semipermeable Membrane Devices (SPMDs), which monitor the uptake of organic contaminants by fish, could be deployed. If the SPMDs indicate that PCBs are available to fish, a quantitative wildlife risk assessment should be conducted.
- * Samples should be collected further downstream in Swan Creek to see if PCBs are present at levels that are not protective of fish and wildlife health. If nonprotective levels are found, the same types of studies as described above for CD#30 should be conducted.
- * For soils to be protective of wildlife health in the western lagoon area, concentrations of PCBs should not exceed 50 ug/kg dry weight within the biotic zone (described in the letter from DOI as being "usually to the 4-foot depth" below ground level).
- * To prevent re-contamination of DC#30 and Swan Creek, PCBs in groundwater that discharges to the drain should not be detectable.

Comments on Draft Baseline Risk Assessment

1. The use of chronic toxicity values for calculating subchronic exposure risks can lead to an overestimation of risk. This should be noted in the Uncertainties section.
2. Please provide the Agency with a copy of the Clean-up Verification Guidance Document, November, 1991, that is cited in footnote 2 of Appendix J1, so that the method used to calculate standard deviation of background can be assessed. Were the data used in this calculation Normally distributed? If so, then only two standard deviations should be used.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

(D)

October 25, 1992

TO: Brady Boyce, Project Manager
Site Management Unit 1
Superfund Section
Environmental Response Division

FROM: Charles Graff, Geologist
Superfund Support Unit
Geological Services Section
Environmental Response Division

Charles W. Graff

SUBJECT: Review of Draft Remedial Investigation Report for
the North Bronson Industrial Area, Branch County

General Comments

105 We know that the Bronson Industrial Area has been impacted by more ^{than} ~~that~~ the two companies targeted in this report, namely Scott Fetzer Components Corporation and the L.A. Darling site. Both the Douglas Components Corporation and Bronson Precision Products have had impacts on the area as well. Although these sites of contamination are being investigated separately from this overall investigation, their impacts to this area cannot be ignored or overlooked. These two sites, and others as applicable, should be discussed in this report and their potential impacts to the site mentioned. Many of these sites have been in operation for a long period of time, and together have contributed to the problems at hand.

106 Throughout the text chlorinated ethenes are referred to as possessing relatively high solubilities. This point should be referenced to some low solubility chemicals relative to them to support this point. As solubilities go, I have never seen these compounds defined as having high solubilities in groundwater. Maximum solubility of ethenes is only in the low and sub percentage range in water. It may be appropriate to state that compared to the metals on site, these chlorinated solvents are much more soluble. Please revise the text accordingly.

107 Caution should be used when comparing "one time" sampling events to each other: such as surface water/sediment or lagoon water samplings. Three years time had elapsed before the next sampling event occurred at CD#30 or the lagoons. Differences in results may be simply due in part, or entirely, to the difference in time between sampling events.

108 Please indicate whether the 1,2-DCE found on site is cis or trans. These have slightly different chemical properties from each other.

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Soecific Comments

109 p. iii, second set of bullets. Please add to this list of sources the Douglas Component Corporation (DCC) and Bronson Precision Products (BPP). Note that DCC has more chlorinated ethanes than ethenes.

110 Last ¶. It may be helpful to put RCRA levels compared to MCLs and Act 307 Type B levels into a table for comparison.

p. 2-3, last ¶. During the site visit in the summer of 1991, it was pointed out by an operator of the water treatment plant that CD#30 was also dredged to improve flow. It was his impression that the sediments were simply piled on the opposite bank of the drain, not disposed of.

✓ p. 3-1. Please place an "R" onto EMEDIAL in the chapter title.

111 p. 3-5, next to last ¶. The well logs for the phase II wells have no soil descriptions from split spoons. Apparently none were taken. If this is not the case, please supply the descriptions, or change this text to reflect this.

112 Last ¶. Regarding the soil samples not analyzed for metals and cyanide: it is not clear which type of samples these were, or if any soil samples were analyzed for metals or cyanide. Please clarify this.

113 p. 3-9, top. In the piezometer clusters, a bentonite slurry was pumped down on top of the lower bentonite chip seal. Above this, natural collapse was allowed before installation of the shallow piezometer.

114 p. 3-11, first full ¶. The explanation of labelling new soil borings with "A", "B", and "C" is confusing. Please provide an example of how this labelling system works.

115 p. 3-13, first full ¶. Since these lagoon waters were sampled two years apart from each other, one would expect a difference in values between the two events. This must be taken into consideration when discussing these results.

116 p. 4-1, last line of page. "North" must be a mistake. Should be "south." w(°^)

117 p. 4-5, second ¶, last sentence. The upper aquifer is homogenous in what way? Please describe what is meant by this. With respect to hydraulic conductivity? The site geology indicates that the aquifer is stratified, so a difference between vertical and horizontal hydraulic conductivities would be expected.

Next section relating to groundwater velocities. Please understand that while these numbers are attained through calculation, these are only estimates at best. Too much is unknown or estimated in the equation. Also, please include a range of velocities using realistic estimates of the various parameters (variable n, i, and K).

118 p. 4-6, third full ¶, last sentence. Since this silty sand is referred to throughout this text as an aquitard, it should not be called a confining layer. Semi-confining layer would be more appropriate, especially since it is not a "lean clay."

119 p. 5-3, concerning the unusable and lost data. Are there plans to collect this missing data in the future?

120 p. 5-7, top. Using the concentration of an analyte as the background concentration does not seem to be good protocol. Either justify your reasons for determining this parameter in this way, or do not use the analyte concentration. These spurious results could be due to any variety of reasons, making their values as natural background suspect.

Under § Inorganic Analytes in Background Surface Soils. It is not clear that these various analytes are not all from the same one sample. If this was the case, the sample should have been thrown out. Please make this clear to the reader. Also include the analyte's concentrations.

121 p. 5-11, Summary of Contaminants in Private Wells. Give reasons why the high levels of metals in some of these wells does not appear to be site related. State which metals these are and their concentrations. Have these citizens been notified of these conditions?

122 p. 5-13, § 5.5, the bullets. Please add Douglas Components Corporation and Bronson Precision Products to this list of potential source areas.

123 p. 5-19, last ¶. Including MW25 in this discussion of L.A. Darling wells does not seem warranted. It is so far downgradient of the site that it could easily be impacted from an entirely different site, or in combination with other sites. In addition, the groundwater flow across the site is variable throughout the year as the water table contour maps indicate.

124 p. 5-20, under § Summary. MW21 is located upgradient and crossgradient of Scott Fetzer. The text implies that the groundwater from L.A. Darling flows onto the Scott Fetzer property. Please revise text.

125 p. 5-21, first ¶. Could this differences in metals detections between MW24 and MW21 be due to migration? Please respond.

126 p. 5-22, § 5.5.2. It is worth mentioning that it was not possible to obtain access to the Scott Fetzer site for sampling purposes, especially considering the run-down condition of the cyanide destruction facility south of State Street. All samples were from perimeter locations.

127 p. 5-25, § Summary. Please clarify the statement regarding a possible upgradient source of contamination to explain the VOCs detected in soils below the water table at the Scott Fetzer site. There does not appear to be a possible upgradient source for these VOCs. Anything detected below the water table at this site should be assumed to be from this site. Considering the extremely high levels of VOCs detected in MW20, it is quite likely that the contamination is from Scott Fetzer alone. If you do suspect another source of contamination, please mention it for future consideration. Back up this statement with data, or withdraw it.

128 p. 5-26, list of subsurface soil samples. MW10D does not appear to belong to this list. See page 5-23 for another list of these sample locations.

129 Second ¶ from bottom. In places it is difficult to know which "exceedances" the text is referring to. Inserting "background" into these sentences would be helpful.

130 p. 5-28, § Summary. L.A. Darling is not directly upgradient of Scott Fetzer; it is more appropriately crossgradient. Furthermore, most of the solvents used at the Fetzer site were used on the east side of the main building, which appears to be more upgradient of MW20 than does the L.A. Darling site. Also, MW27, similar to MW25, is a long way from the Scott Fetzer site. See comments above pertaining to MW25 and L.A. Darling.

131 Next ¶. MW19 is not directly upgradient of MW20; maybe not upgradient at all. The last sentence of this paragraph implies that there is a major source (versus a "potential source") of contamination at the Scott Fetzer site, although this is not specifically mentioned anywhere in the text--but seems warranted. Secondly, it implies that the ethane compounds constitute another source of contamination--this may be the case. Thirdly, that MW19 is not upgradient of MW20, or else MW20 would contain ethanes as well. In short, this sentence implies much, but says little. Please clarify this.

132 p. 5-34, second to last ¶. In discussing relative levels of contamination in different monitoring wells, it is important to remember that even though these are wells clusters, MW5 and MW10, they were not installed via vertical aquifer sampling techniques. So the most contaminated portion of the aquifer may not presently be intercepted in one or both of these locations. This makes a meaningful discussion the issue of sources quite difficult.

133 p. 5-36, § 5.5.4. There does not seem to be enough data to conclusively state that contamination from one site (Scott Fetzer) travels one direction, and the site nearby (L.A. Darling) travels in a different direction altogether. Other factors influence contaminant transport besides groundwater flow direction. Please take this into account in this discussion.

134 p. 5-37, § 5.6, first ¶. During a meeting or field visit between Warzyn and MDNR, the issue of four lagoons near Bronson Plating Inc. was discussed. At that time, it appeared (on maps) that the plating company had expanded to cover most of the two eastern-most lagoons. There was then discussion to install a boring in the indent in the building along its eastern side that would very likely intercept one of these lagoons. It seems that there were site maps indicating this relationship. The text seems to indicate that it is questionable whether these lagoons existed or not.

135 p. 5-40, last ¶. The highest contaminant concentrations were found in the deepest samples at each boring. What does this data indicate about how the lagoons are affecting the groundwater below them? Please discuss.

136 p. 5-48, second ¶. The second sentence pertaining to SVOCs is rather confusing. Do you consider Bronson Plating the source or not, this is not easily determined here.

137 p. 5-49, first ¶. The last sentence implies that because these metals are not considered a large component of plating wastes, they may not be addressed or considered during remediation. Please clarify this point.

138 p. 5-50, second ¶. Please indicate which sampling round was analyzed for TCL organics.

139 p. 5-51, § Summary, third ¶. It may be appropriate to simply mention that there may be upgradient sources for the solvents in the groundwater below the

eastern lagoons. Could the industrial sewer have contributed to this contamination? And please remove L.A. Darling from consideration as a source, unless you present convincing evidence to that effect. Previous discussions have its contamination travelling in many directions; it is doubtful whether contamination from L.A. Darling could affect so many different locations.

140 p. 5-54, first full ¶. Please put the values of the AWQC used for this report into an appendix and indicate where this information can be found for the reader.

41 Fourth ¶, VOCs. Please be specific which lagoons are being spoken of, initially, this paragraph seems contradictory to the previous one.

42 p. 5-56, Summary ¶, last sentence. Were the deeper samples more turbid than the shallower ones? This may have had an effect on metals concentrations between these two sampling depths. Were samples filtered or not? Please respond. ✓

143 p. 5-60, last ¶, last sentence. In assessing this problem, will you assume the areas below the deepest sludge samples are contaminated? Or will there be additional samples collected to establish the depth of the sludge and contamination?

144 p. 5-61, first ¶. Will samples LB4 and LB6 be resampled due to laboratory error?

145 p. 5-62, last ¶. MW7^S does not appear on Figure 3.1 or 3.3. Please indicate where this monitoring well can be found, and adjust Figures accordingly.

146 p. 5-63, top. Was MW7^S not completed as a monitoring well? It does not appear on this list. Please clarify.

147 p. 5-64, § Summary, first ¶. Please offer an explanation as to why MW6S, north of CD#30, has been impacted by contamination.

148 p. 5-65, top. Please consider the other possible contamination sources at the site.

p. 5-67, bottom. See above comment.

149 p. 5-68, top. See comment of page 5-51.

150 p. 5-70, top. Since Bronson Plating may have a possible NPDES permit exceedance, the proper authorities should be informed.

151 First full ¶. How do you plan to treat the Cr laboratory error? Assume it is there, or resample?

152 p. 5-73, top. Add a parentheses before the word "due" in the first line. Add "and cyanide" after "The following metals" in the third line. Same thing on next page under Summary.

153 p. 5-78, second ¶, third line. Is this SD11 or actually SD1? 

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p. 5-79, bullets. Please add other possible sites to this list: sites which have used chlorinated ethenes.

155

p. 5-80, second full ¶. PAHs were found in CD#30 too.

156

p. 6-3, first ¶, tenth line down. Please state what the organic solute has an affinity for. Perhaps this sentence would be better left out, since the next one explains more clearly what K_{oc} will be used for.

157

p. 6-6, second and third ¶. In these two paragraphs, microbially mediated degradation of chlorinated ethenes is discussed. Being that this is an aerobic aquifer, these methods of degradation do not seem to apply here.

158

p. 6-7, § 6.1.6. What does this paragraph have to say about the site? Please clarify your intent here.

159

p. 6-8, last ¶. It is not accurate to state that volatilization is minimal, since no soil gas samples have ever been collected at either of these sites. Without this data, no one can conclusively argue one way or another.

160

p. 6-9, fourth ¶. Explain why you think vegetation will prevent VOCs from volatilizing to the surface and then into the air. Another consideration is that VOCs may migrate in the vadose zone in their vapor phase. Then during periods of precipitation, they can again be dissolved by infiltrating water and driven into the soils where they have migrated to, thus contaminating more soils and possibly groundwater in a different location of the site.

161

p. 6-11, second ¶. It is not likely that groundwater flow from these two sites would be due west.

162

p. 6-12, second ¶. These two wells are also located north of CD#30--on the side of the drain that appears to be unaffected by the industry to the south. In addition, this point is moot, since groundwater flow in the lower aquifer is also an unknown.

163

p. 6-13, third ¶. See comments above pertaining to VOC migration and volatilization.

164

p. 6-14, top. MW24 has been referred to earlier as an impacted, downgradient monitoring well. Please clarify this. MW29

165

First full ¶. If there are staff gages in the lagoons, it would be easy to determine whether the water in the western lagoons is due to the water table or not.

166

p. 6-15, first full ¶. State what the various solubilities of these chlorinated solvents are, either in the text or in the appendix.

167

In discussing NAPLs, you have failed to mention that since these solvents are all more dense than water, they qualify as DNAPLs: dense non-aqueous phase liquids. Which will tend to sink into the aquifer regardless of groundwater flow directions. These DNAPLs will also flow against the local and regional groundwater flow directions if they encounter impermeable surfaces sloping in the opposite direction. Unfortunately, this site presents such a scenario.

There is an aquitard sloping to the south, against or discordant to site groundwater flow directions. In addition, it would appear that MW20 has levels of chlorinated solvents that probably qualify as a DNAPL.

Barring any lengthy discussions concerning DNAPLs and their probable existence at the site at this point in time, here are a few recent references concerning DNAPLs that I have found most helpful: EPA document EPA/600/R-92/030, February 1992, "Dense Nonaqueous Phase Liquids, A Work Shop Summary"; EPA Publication: 9355.4-07FS, January 1992, "Estimating Potential for Occurrence of DNAPL at Superfund Sites"; and EPA Memorandum, Directive No. 9283.1-06, Don R. Clay.

Using the second reference, the TCE and 1,2-DCE in MW20 indicate a strong potential for DNAPL existence at the site. For example, 30 mg/l TCE in MW20 is approximately 3% of the maximum solubility of TCE in water (1000 ppm). It only takes 1% of maximum solubility to have a high probability of a DNAPL. Because this is a mixed plume of contamination, the operative value is not the maximum solubility, it is the effective solubility, which is much less than the maximum solubility.

Second ¶, concerning low permeability of aquitard. Note that solvents move through these types of sediments much easier than does water.

See comment above concerning lack of contaminants in private wells in the lower aquifer.

p. 6-16, third ¶. Please describe which are the "appropriate nutrients" found in the aquifer. Again, as stated earlier, since this aquifer is likely a typical aerobic unconfined aquifer, little substantial degradation can be expected to occur. The discussion really does not apply.

Last ¶. Please state why you think some attenuation is occurring in the aquifer.

p. 6-17, last ¶. In the second line, add the words "and contaminant" after "...physical properties of the sediment,..."

Last part of ¶. This discussion of particle size and adsorption capacity needs reworking. Please clarify. Do you mean effective surface area? as similar to granular activated carbon?

Tables

Table 4-2. The aquitard elevation of MW5D should have a > symbol, not a < symbol.

Table 4-5. Column 4 should be calculated from the top of the lower screen to the bottom of the upper screen.

Figures

Figure 3-2. Lines used to estimate horizontal gradients were mostly east-west in orientation, when in many cases the groundwater flow is actually northwest-southeast. In some cases this changes the values slightly.

Figure 3.6. Contour 904.8 bends too far north of MW5 location and MW4S. It should be closer to these wells than to PZ7 location and MW27. This is presently somewhat misleading.

177 Figure 3.7. There are no elevation data at well/piezometer locations. Dash the 905.0 contour as it enters the OCC property (static water level information would be helpful here). This contour should pass just north of MW27 as well. Please label the hashed circle surrounding G & W Fixtures. Contour 905.2 should cross over MW3S as it comes from MW4S and continue more northeast-southwest versus north-south. This contour should also pass on top of PZ6.

178 Figure 3.8. Table 4-3 does not contain the June 25, 1992 static water level elevation data. Where can this data be found?

179 Figure 4.1. There is no elevation data on the map at points that were used to generate the contours. Please include these. Contour 864 (closed circle) between contours 872 and 868 should have tick marks inside of it pointing in. There should also be an 868 contour surrounding this 864 depression--just like it. Please label the circled contour north of this above contour 884.

180 Figure 4.4. Cross-section B-B'. There needs to be a better connection of the silty sand aquitard between MW25 and PZ5.

181 Figure 4.5. The E.O.B. at MW6S could be a clay lens and not the actual aquitard. This lens is also present in MW8D and S89. CSY

182 Figure 5.2. Please clarify whether everything inside the large dashed area at the L.A. Darling site is contaminated with cadmium or not.

Volume II of III

Log of Test Borings

183 Well logs for the new monitoring wells: there are no results of the vertical aquifer sampling in these borings, or what was encountered at E.O.B. Nor are there descriptions of any of the split spoons taken during drilling.

Monitoring Well Construction Information

184 The calculated elevations to the left of the diagram do not match the monitoring well specifications on the right. For example, the total length of pipe plus the total screen length should equal a specific length--but it does not. Please add the elevation of the top of the well screen to the diagram. This would help clear things up greatly. Also, the "stick-up" values do not match with the differences calculated from the surveyed elevation differences. Please correct this. Next to "Type of Backfill Around Screen" add in it's total length. Under "Additives", why was clear water added? Please explain why MW24 and MW27 each have such large gaps between the top of the screen and the bottom of the bentonite seal. The symbols in the diagram for natural collapse should be the same even if one is below the screen and one is next to the screen. Lastly, it would be most helpful to have the boring logs and well construction details side by side.

cc: Jim Heinzman, ERD

NATURAL RESOURCES
COMMISSION

LARRY DEVUYST
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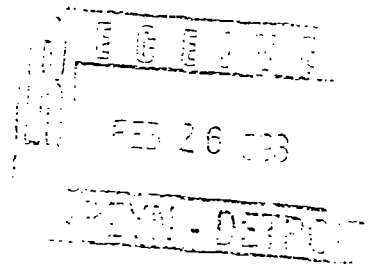


JOHN ENGLER, Governor

DEPARTMENT OF NATURAL RESOURCES

Stevens T. Mason Building, P.O. Box 30029, Lansing, MI 48909

ROLAND HARMES, Director



February 23, 1993

Make
SGW

Mr. Joel Kahaner, P.E.
Project Manager
Warzyn Inc.
41551 Eleven Mile Rd.
P.O. Box 8012
Novi, Michigan

RE: North Bronson Industrial Area
Draft Remedial Investigation (RI) Report

Dear Mr. Kahaner:

Staff of the Michigan Department of Natural Resources have reviewed the draft RI Report for the North Bronson site in Branch County. Previously, preliminary comments of both the MDNR and the U.S. EPA were transmitted to you so that technical discussions would be possible during our meeting on January 15, 1993. The comments contained herein are in addition to those sent previously and include items discussed at the meeting.

At your suggestion, our meeting discussions focused on a few major subject areas and not on each detailed comment of the MDNR or the EPA. You advised us that the detailed comments would be addressed by Warzyn in the final RI Report based upon the results of the major subject discussions. My interpretation of the results of our discussions are as follows:

185
Residential Wells: The MDNR agreed to obtain an inventory of those in Bronson who are utilizing their own private well. This list was provided by the city to us and is enclosed. As you are aware, the resources were not available to sample all of the residential wells in Bronson and, to date, we have no reason to suspect there may be a problem with the quality of the water from those wells. For the most part they are south of the potential source areas and therefore upgradient. Monitoring, if done, is a responsibility of the Michigan Department of Public Health (Branch County) and as such will only be addressed in our report to the extent of noting that there are a number of private wells in use in Bronson and that it is recommended that they be evaluated as potential receptors by the city and/or the MDPH as they deem appropriate. At this time, I see no point in listing those on private wells in the report as they may view it as meaning there is a problem with their water supply, which we do not have any information about. The MDNR is still evaluating the residential well situation and have been in contact with the

February 23, 1993

local health department about it. If more information develops, both Warzyn and the EPA will be kept apprised of it.

186 Douglas Components (Douglas Autotech): Warzyn agreed to revise the study area boundary to include this property. Even though the RI will explain that this is being addressed as a distinct site through the MDNR Jackson District, it should not be specifically excluded from the site boundary. While it is anticipated by district staff that the localized cleanup will address the groundwater at this site, until the remediation has been underway for some time and more data is available, it is premature to preclude this site from having any area-wide adverse impact on the upper aquifer.

187 Lower Aquifer: There is very limited data on this aquifer. There is not adequate data available to characterize the quality of this groundwater. What's more, as the direction of groundwater flow in this aquifer is not clear, it is not possible to determine whether there are any potential receptors if this groundwater were to be contaminated. We have also been unable to locate information as to the number and location of wells screened in the lower aquifer other than the municipal wells. Enclosed is the latest round of analytical data from the city's wells (Fall 1992) which was provided by the MDPH, along with a well log for well #3. Apparently the MDPH did not have well logs from the other wells. The analytical data can either be included in the RI Report and/or the fact that the city wells were not contaminated can be stated.

188 DNAPLS: Warzyn is to provide the MDNR with proposed language covering this subject. It is important that this report addressed DNAPLS in a manner consistent with other MDNR projects. Therefore, will use our definition and make the final decision on language to be contained in the final report. Please provide a draft to us as soon as possible.

189 Contamination Areas: There is documented contamination in a number of areas within the site study area. However, some of the maps generalize what may be the limits of contamination, or at what concentrations it may exist in certain areas. This could be misleading and cause alarm to the public in those cases where these general contamination limits extend onto their property. As we do not have data to conclude that there is a problem on those properties, it is not advisable to present it that way.

190 NPDES Permits: Enclosed are NPDES Permits which have been issued to Bronson Plating and the Bronson WWTP. At your suggestion, these will be included in the RI Report.

191 Eastern Lagoons: MDNR previously provided Warzyn with a copy of the EPA historical aerial photos which show the development of the lagoons at Bronson Plating and their subsequent removal or coverup when the Bronson Plating facility expanded.

192 Workers Exposure: A discussion of this will be added to the RI Report or Risk Assessment.

193 Background Sampling: Warzyn agreed to provide the EPA with copies of the MDNR guidance documents which were used to develop background levels. The draft RI list a number of "exceedences" in various media. If concentrations are below established background levels or below required method detection limits (Type A) OR below Act 307 Type B criteria, then these are not considered exceedences.

194 AWQC: In the previous comments of the EPA provided to Warzyn (Page 6, #38) there was suggested language to be inserted in the RI Report. Attached is modifications to that language which has been agreed upon by both the MDNR and the EPA. This is regarding Ambient Water Quality Criteria.

ADDITIONAL COMMENTS:

195 Baseline Risk Assessment: As we discussed in a recent telephone conversation, this document needs to provide further explanation, in laymans language, as to just what the risks are at the site. There is an abundance of charts and tables showing numerous mathematical risk numbers but these need to be interpreted for the public (and me) so that it becomes more understandable. Further, I believe it should make recommendations, if appropriate, if there are any areas or particular media that pose an immediate threat to the public health. In other words, are there any receptors which are currently being exposed to the extent that something needs to be done - or they need to be notified - immediately? These areas, if any, should be distinguished from the areas that have contamination that will to be addressed in a timely manner under the normal process, but which are not emergencies.

196 County Drain #30: Section 5.7 needs some revision. Please clarify the outfall designation numbers on page 5-68. In addition further attempts at explaining the implications and extent of contamination would be helpful. Basically, the impact of site contamination migrating to Swan Creek needs to be addressed in more detail. Will the drain need to be remediated downstream from the old lagoons, and if so, how far? Will Swan Creek itself need to be addressed? Also, some of the data shows higher concentration of PCB's further away from the lagoons. Can this be explained. Is there any explanation as to the source of the PCB's? Surface water and sediments need to be characterized better. For example page 5-76 shows Total PAHs for some sample points but not others. Does this mean it was non-detect for some? It is important to evaluate the drain in more detail and include more narrative and make conclusions based on the data.

197 Michigan SAS Score: Under a new scoring system, the Michigan Site Assessment System Score for this site is 38.

198 Background Surface Water: Page 5-12. A number of indicator parameters in the background samples were higher than downstream samples. There is no attempt to explain this. It could be due to the city salt storage shed which is adjacent to the sample location. It appears this is not a usable background sample.

February 23, 1993

199
200
Scott Fetzer Subarea: It is speculated that contamination in the groundwater here may be due to the movement of upgradient groundwater passing through. This looks unlikely. There is no reasonable source area for this contamination upgradient. More likely, the samples just missed the "hot" spots or there may have been dumping or spills inside the plant, perhaps through floor drains, which we have not sampled for.

Section 5.6 Waste Lagoons: It would be helpful to give more detail about the lagoons in terms of elevations from top to water to sludge to bottom. Even further it would be helpful (and necessary for the FS) to calculate volumes of water, sludge, soils, etc. which will have to be dealt with.

This concludes the additional comments. The other significant issues discussed at the meeting are still up in the air. We are waiting for the EPA to formalize their position that the Feasibility Study should narrow its focus to the old and new lagoon areas and not address the groundwater or the sources which are to the south. As soon as this is clarified you will be advised.

The issue of turning the state involvement in the Superfund Program back to the Federal government is still under discussion at a number of different levels. We have requested that our Deputy Director attend our Sectional training next week to answer questions about this proposal. Even though we will likely not have a firm answer on this, we may learn more about the timetable. In other words, it may be possible for us to complete and finalize the RI/FS even if we are to be eliminated. I will, of course, advise you as soon as we can evaluate the situation better. As stated at the meeting, for now Warzyn must be placed on a temporary hold in regards to proceeding with the Feasibility Study and other related documents such as the Alternative Array. Thank you for your patience and understanding in this matter.

If you have any questions, or wish to discuss this in more detail, please contact me.

Sincerely,

Brady Boyce, Project Manager
Superfund Section
Environmental Response Division
517-373-4824

cc: Ms. Mary Tierney, EPA
Mr. Chuck Graff, ERD
Ms. Bonnie Maurer, ERD

MICHIGAN DEPARTMENT OF NATURAL RESOURCES

INTEROFFICE COMMUNICATION

June 24, 1993

TO: Brady Boyce, Project Manager
Site Management Unit 1
Superfund Section
Environmental Response Division

FROM: Charles Graff, Geologist
Superfund Support Unit
Geological Services Section
Environmental Response Division

Charles W. Graff

SUBJECT: Review of revised Sections 3.0 and 4.0, Soil Boring and Monitor Well Logs, and Section 6.0 dealing with DNAPL's of Draft RI on North Bronson Industrial Area, Branch County

Specific Comments

201 p. 3-17, third ¶. The last part of this paragraph is somewhat confusing. The explanation concerning the masking of compound peaks on the field gas chromatograph needs clarification. So where was the highest contamination in the aquifer at these locations? And what was the professional judgement based on? These are important points and they deserve to be mentioned, so please do not eliminate them from the text in an attempt to simplify the paragraph.

p. 8-15 and 16 look fine.

Boring and Well Logs.

These logs are laid out nicely. Especially handy is that the boring logs and well constructions are side-by-side.

202 Missing on the well construction logs is any indication of where the screen is actually placed. The length is given, but the location of the screen below the ground surface and the corresponding elevations (top and bottom of screen) should be noted on these logs.

203 Please add sediment descriptions to the "Visual Classification and Remarks" column. It looks like sand was the lithology drilled through as indicated to the left of this column, but there is no description. Even though no split spoons were taken, indicate what the soil types were generally. There appears to be some agreement about this already since the graphic portion of this log looks like sand.

204 Why does MW21 have a solid black line under "Type" in the "Sample" column? Was this well continuously sampled? Please explain or revise this.

205 Please explain why MW29 was sampled every 10 feet instead of every 5 feet like the other monitoring wells. This could be done in the text (perhaps page 3-17) or on the log.

cc: Jim Heinzman, ERD





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

77 WEST JACKSON BOULEVARD

CHICAGO, IL 60604-3590

JUL 07 1993

REPLY TO THE ATTENTION OF:

HSRW-6J

Mr. Brady Boyce
Environmental Response Division
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909

Re: **Comments on revised section of RI report
North Bronson Industrial Area site
Bronson, Michigan**

Dear Mr. Boyce:

Enclosed are the comments I had on the revised sections of the RI report submitted by Warzyn, Inc. for the North Bronson Industrial Area site. I have sent copies directly to Joel Kahaner and Steve Wiskes of Warzyn so that they can begin finalizing the report as soon as possible.

During the teleconference on June 15, 1993, Steve Wiskes had a question on comment #101. I have enclosed information from the Technical Memorandum prepared by Warzyn in October 1989 on which I based the comment. However, note that the concentration of TCE I included in my comment is not correct. The result I believe I meant to refer to was the 3600 ug/kg of 1,1,1-trichloroethane detected in MW08 located near the DCC #2 facility.

Please give me a call if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Mary Tierney".

Mary Tierney
Remedial Project Manager

cc: Rose Freeman, U.S. EPA
Joel Kahaner, Warzyn
Steve Wiskes, Warzyn

EPA COMMENTS ON REVISED PORTIONS OF RI REPORT FOR
NORTH BRONSON INDUSTRIAL AREA SITE

July 1, 1993

The following are comments by the U.S. Environmental Protection Agency (U.S. EPA) on revised portions of the remedial investigation (RI) report for the North Bronson Industrial Area site. The Executive Summary, Sections 2.0, 6.0, and 7.0 of the RI report, and a number of figures were resubmitted on April 30, 1993. Section 5.0 of the report was resubmitted in mid-June 1993. Sections 3.0 and 4.0, a portion of Section 6.0, and soil boring and monitoring well construction logs for SB/MW 19 through 29 were resubmitted on June 21, 1993.

Executive Summary

- 206 1. Page ii. Insert the word "only" after the word "discussion" in the fifth line.
- 207 2. Page ii, paragraph 3. Replace the first sentence with the following: "The contamination detected at the site is the result of industry operating practices since the early 1900's, possibly as early as 1910."
- 208 3. Page ii. Modify the list of source areas as discussed in the June 15, 1993 teleconference.
- 209 4. Page iii, paragraph 2. Reword as follows:
- TCE is commonly used as an industrial solvent for cleaning and degreasing and was likely in the waste streams discharged to the eastern and western lagoons. Facilities in the area which have at this point been identified as potential sources of the TCE are: Bronson Specialties (Plastics, Tool, and Fiberglass Divisions), Bronson Plating Company, Scott Fetzner/Douglas Components Plant #1, Douglas Components Plant #2, Bronson Precision Products, LA Darling and Bronson Reel.
- 210 5. Page iii, last paragraph. Please modify the reference to solubilities of chlorinated ethenes as discussed in the teleconference.
- 211 6. Page iv, paragraph 2. Replace this paragraph with the following:
- Contaminant transport in groundwater, at the site, is likely driven by horizontal and vertical gradients. These gradients are affected by many factors including

permeability of the geologic material of the upper aquifer and of the material underlying it. The upper aquifer is a relatively permeable sand and gravel mix. Based on drilling activities that took place at the site, it appears it is possible that an aquitard, which is potentially continuous, underlies the upper aquifer. This conclusion was based on data collected while drilling 29 soil borings on the 400-acre site, examination of residential well logs from the area, and information from a regional geologic atlas. The material underlying the upper aquifer is a silty sand and clay layer which appears to vary in thickness from 17 ft to 50 ft. This underlying layer is relatively impermeable and may serve as a barrier to the downward migration of contaminants located in the upper aquifer into the lower bedrock aquifer. Data from the lower aquifer were not collected during the remedial investigation.

Although references are made throughout this report to "the aquitard" underlying the upper aquifer, it should be kept in mind that the presence of a continuous aquitard at the site has not been confirmed.

- 212 7. Pages iv and v. Delete recommendations as discussed in teleconference.

Section 2.0 Site Background

- 213 8. Page 2-1, paragraph 2. Please insert the following prior to the last sentence in paragraph 2:

These boundaries reflect the area that was studied during the remedial investigation. The area defined by these boundaries does not correspond to the site that was originally scored using the Hazard Ranking System and that was subsequently placed on the NPL.

- 214 9. Page 2-3, paragraph 2. Add the sentence: "The City of Bronson were the owners and operators of the western lagoons during the time they were used. Currently, the city still owns the lagoons".

- 215 10. Page 2-3, prior to bullets. Replace first sentence with: "From approximately 1939 to 1949 the following companies reportedly discharged wastes to the western lagoons:".

- 216 11. Page 2-3, after bullets. Please insert: "Bronson Reel reportedly discharged wastes to the western lagoons until approximately 1968. Note that three of the four companies listed above operated prior to construction of the western lagoons in 1939. Waste disposal practices used by these companies prior to this time are not known. (Douglas

Components began operations in 1910, LA Darling in the early 1900s, and Bronson Reel in 1922.)"

217

12. Page 2-4, paragraph 1. At the end of the first paragraph, add the sentence: "LA Darling, Bronson Plating Company, and Douglas Components Corporation Plant #1 reportedly ceased use of the eastern lagoons in 1967, 1981, and 1951, respectively."

218

13. Page 2-4, last paragraph. Please insert "from 1949" after the word "lagoons" in the first sentence.

219

14. Page 2-9, paragraph 6. Reword first sentence as follows: "... (b) (6) ".

220

15. Page 2-12, paragraph 5. Add after second sentence: "(However, information obtained since the RI was completed indicates that at least two additional residential wells in the area may be present.)".

221

16. Page 2-13. The residence at (b) (6) is the home of (b) (6), the sister of (b) (6). Unless other information is obtained from the MDPH, the sample listed as being collected from the (b) (6) in 1989 should be assumed to be from the well of (b) (6) and not from the municipal well. (b) (6) Street.

222

17. Page 2-13, paragraph 3. Remove statement about recommendation.

Section 3.0 Remedial Investigation Activities

223

18. Page 3-5, paragraph 5. Please specify the IDs of the 19 wells which were installed as part of Phase I of the RI. I believe the wells that were installed were: MW1S, 2S, 3S, 4S, 5S, 5D, 6S, 7S, 8S, 8D, 13S, 13D, 14S, 15S, 15D, 16S, 16D, 17S, 17D, and 18S. This is a total of 20 wells, however. Was one of the deep wells listed above installed during Phase II?

224

19. Page 3-6, paragraph 3. Please specify the IDs of the 11 wells installed during Phase II of the RI (MW19 through MW29).

225

20. Page 3-7, paragraph 3. Based on the information in the well boring logs for MW19 through MW29, it appears as though the wells that were not set at the zones of highest VOC contamination were MW20, MW21, MW23, and MW27, instead of MW19, MW23, and MW29, as is stated in the text. Please check. However, it is difficult to tell from the boring

logs exactly where the screen was placed. On the monitoring well construction figures, the depths of the screened intervals (number 7 in the drawings) are in all cases longer than the length of the actual screen as listed. Do we know where the screens are located for these wells?

- 226 21. Page 3-8, paragraph 3. Please revise the first sentence as follows: "Deep wells were installed to what was assumed to be the top of the aquitard...". (When the word "installed" is used, I am assuming that this refers to the depth at which the screen was set).

- 227 22. Page 3-9, paragraph 1. Please delete the portion of the first sentence which reads "or at the water table if no contamination was detected." This situation did not occur.

Section 4.0 Physical Characteristics of Study Area

- 228 23. Page 4-2, paragraph 2. Please revise the last sentence prior to the bullets as follows: "The general stratigraphy beneath the site, based on data gathered from borings made on the site and on information from the Hydrogeologic Atlas of Michigan...". Insert the word "assumed" prior to the word "aquitard" in the third bullet.

- 229 24. Page 4-3, paragraph 3. Please change the percentage range of clay in the aquitard to 6.5 - 20.5% clay instead of 14.0 - 20.5%.

Section 5.0 Nature and Extent of Contamination

- 230 25. Page 5-7, paragraphs 2 and 3. Please move paragraphs 2 and 3, which begin "Although Michigan Act 307..." and "The use of Ambient Water Quality...", respectively, to below the last paragraph of the previous section (Section 5.3).

- 231 26. Page 5-12, first sentence. Revise the first sentence to read: "Data collected during the RI did not seem to indicate that private wells had been impacted by site activity".

- 232 27. Page 5-14, paragraph 3. The facilities within each of the subareas that are possible sources of contamination should be listed. Following the third sentence in Section 5.5, I would revise the section as shown below.

Within the industrial complex, three study subareas have been defined which include:

- * LA Darling Subarea
- * Scott Fetzer Subarea

* Abandoned (Western) Industrial Sewer Line

The three areas are delineated in Figure 5-1. The delineating lines on Figure 5-1 do not necessarily imply distinct contaminant source areas but rather are for grouping samples to aid in the understanding and evaluation of site conditions. The areas have also been defined to include sampling locations downgradient of potential source areas but there is likely overlap of contaminant plumes downgradient.

The LA Darling subarea contains the former location of LA Darling and part of the eastern industrial sewer line. The Scott Fetzer subarea contains the former Scott Fetzer/DCC Plant #1, the former Bronson Reel, and portions of the western industrial sewer line. Bronson Specialties (Plastics, Tool, and Fiberglass Divisions), Bronson Precision Products, and Douglas Components Plant #2 were not included in any of the subareas studied during the RI. However, this does not indicate that these facilities are not potential sources of contamination at the site.

I think the paragraph on DCC Plant #2 should be located elsewhere in the RI report. Also, it might be easiest to refer to the two DCC facilities as DCC #1 and DCC #2 (or as DCC Plant #1 and #2).

- 233** 28. Pages 5-24 and 5-27. In the list of soil borings on these two pages, should it be MW20D instead of MW10D?
- 234** 29. Page 5-38, paragraph 1. Please modify the sentence in the middle of the paragraph to read: "It should also be noted that Bronson Precision Products, Bronson Specialties, and DCC Plant #2 may also be potential sources of contamination in the industrial complex area."
- 235** 30. Page 5-39, paragraph 2. You can refer to DCC at the Scott Fetzer buildings as "DCC Plant #1" if it is easier. Also, in the last sentence of this paragraph, refer the reader to Section 2.0 for further historical information.
- 236** 31. Page 5-50, paragraph 1. Please change the last sentence to read "Based on this observation, TCE and PCE may not have been part of the waste deposited in the two eastern lagoons that were investigated but may have...from an upgradient source. A possible upgradient source would be one or more of the eastern lagoons which were not investigated as part of the RI."
- 237** 32. Page 5-56. I am missing this page.
- 238** 33. Page 5-67, paragraph 3. MW27 is upgradient of the western

lagoons. Please indicate that contamination detected in this well may be from upgradient sources.

239 34. Page 5-67, paragraph 4. Is shallow groundwater flow beneath the western lagoons west northwest as stated, or is it more north-northwest? (See revised page 6-16, paragraph 2).

240 35. Page 5-67, paragraph 5. Please make references to the two DCC facilities consistent throughout the report.

241 36. Page 5-70, paragraph 3. Please modify the last part of the paragraph as follows:

"...it is likely that similar contaminants from the Scott Fetzer subarea, the LA Darling subarea, the abandoned industrial sewer line, and DCC #2 have migrated in groundwater to the downgradient western lagoons. Other possible sources that were not investigated as part of the RI are Bronson Specialties and Bronson Precision Products."

242 37. Page 5-70, paragraph 4. The known users of these compounds that are listed in parentheses should be DCC #2, LA Darling, and Bronson Plating Company.

243 38. Page 5-72, last paragraph. Please modify the second sentence as follows: "It is possible the chlorinated ethenes detected in OF5..."

244 39. Page 5-82, last paragraph. Modify the fifth sentence as follows: "...thus a likely source of PCBs...". Also, mention that PCBs were detected in the eastern lagoons.

245 40. Page 5-83, paragraph 2. Modify the source areas as discussed in the teleconference. The list should be: LA Darling subarea, Scott Fetzer subarea, Western Lagoons, Eastern Lagoons, Abandoned Industrial Sewer subarea, and DCC Plant #2. Following the bullets add the sentence: "Other possible sources that were not investigated during RI activities are Bronson Specialties and Bronson Precision Products."

246 41. Page 5-83, paragraph 3. Modify the third sentence as follows: "TCE is a common industrial solvent and was likely used at the LA Darling subarea, the Scott Fetzer subarea and Douglas Components Corporation and was likely in the waste stream deposited in the western lagoons."

247 42. Page 5-84, paragraph 1. Modify the second sentence as follows: "PCBs were detected at relatively high concentrations in CD#30 sediments downstream of the western lagoons, Swan Creek, and at relatively low concentrations in eastern lagoon sludge." (On page 5-42, it states that

Aroclor 1254 was detected at 1200 ug/kg in an eastern lagoon sludge sample).

Section 6.0 Contaminant Fate and Migration

- 248 43. Page 6-10, last paragraph. Please change the groundwater flow direction at the western lagoons if WNW is not accurate. (See page 6-16, paragraph 2).
- 249 44. Page 6-12, first paragraph. Please revise the last sentence in the paragraph, which begins "No organic or metal contaminants...". Zinc exceeded a secondary MCL at the Eichler well. I would replace the sentence with: "Results from samples from these two private wells did not seem to indicate that contaminants from south of the drain have migrated into the lower aquifer in this area. However, because the lower aquifer was not investigated as part of the RI, this cannot be stated conclusively."
- 250 45. Page 6-13, last paragraph. Delete the parenthetical remark "(identified source areas)", and insert the word "subarea" after "LA Darling" and "Scott Fetzer". Also, insert "#2" after DCC.

Section 7.0 Conclusions and Recommendations

- 251 46. Page 7-1, paragraph 3. Please modify the bullets as follows:
- * LA Darling subarea
 - * Scott Fetzer subarea (DCC Plant #1, CDF, and Bronson Reel)
 - * Western Lagoons
 - * Eastern Lagoons
 - * Abandoned Industrial Sewer
 - * DCC Plant #2

Also, has the acronym "CDF" been defined previously in the text? Is this the designation that will appear on the final figures for the building?

- 252 47. Page 7-1, last paragraph. Modify the last sentence as follows:
- TCE is a common industrial solvent and was likely used as a parts cleaner/degreaser at LA Darling, Scott Fetzer/DCC #1, Bronson Reel, DCC #2, Bronson Plating Company, and was likely in the waste stream deposited in the western lagoons.
- 253 48. Page 7-2, paragraph 5. As stated in comment #42, it seems as though the PCBs detected in the eastern lagoon could be classified as "relatively high concentrations" also.

- 254 49. Pages 7-3 and 7-4. Delete recommendations as discussed in teleconference.

Figures and Maps

- 255 50. Figure 2-2. Indicate that the current location of Bronson Precision Products is the former location of both Bronson Reel and Bronson Products. Indicate that the Plastics Division of Bronson Specialties, Inc. is located in the western buildings and the Tool Division is in the building in the southeast corner of the facility. Please indicate the area where contaminated soil was excavated from the Plastics Division property, if known. Indicate that the Scott Fetzner/DCC #1 building was also the former location of Bronson Plating Company.

Miscellaneous

- 256 51. My last name is spelled with two "e's": Tierney. Thanks.